THE OIL WEEKLY

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Oil Man's Calendar

OCT. 4-9	Chicago Exposition of Power & Mechanical Engineering, New International Amphitheatre, Chicago.
5	East Texas Chapter Meeting, American Petroleum Institute, Kilgore.
7-8	American Institute of Mining and Metallurgical Engineers, Petroleum Division, Fall Meeting, Oklahoma City, Oklahoma.
11-15	National Safety Congress & Exposition, Kansas City, Missouri.
11-16	Oil-World Exposition, Houston, Texas.
13-14	Indiana Independent Petroleum Association, Indianapolis, Ind.
13-15	Institution of Mechanical Engineers, London, England, discussion on Lubricants and Lubrication.
14-15	Interstate Oil Compact Commission, Rice Hotel, Houston, Texas.
14-16	American Association of Petroleum Geologists, Mid-Year Meeting, Pittsburgh, Pennsylvania.
14-16	Independent Petroleum Association of America, Houston, Texas.
18-22	American Welding Society, Atlantic City, New Jersey.
18-23	American Institute of Mining & Metal Engineers, Atlantic City.
27	Mid-Continent Oil & Gas Association, Annual Membership Meeting, Louisiana-Arkansas Division, Shreveport, Louisiana.
27-28	Indiana Independent Petroleum Association, Indianapolis, Ind.
29-30	Mid-Continent Oil and Gas Association, Texas Division, Baker Hotel, Dallas, Texas.
NOV. 8-12	American Petroleum Institute, (Annual), Chicago, Illinois.
19	Mid-Continent Oil and Gas Association, Annual Membership Meeting, Kansas-Oklahoma Division, Tulsa, Oklahoma.
DEC. 6-10	American Society of Mechanical Engineers, New York.
1938 MAR. 16-18	Annual Meeting, American Association of Petroleum Geologists, Roosevelt Hotel, New Orleans, La.

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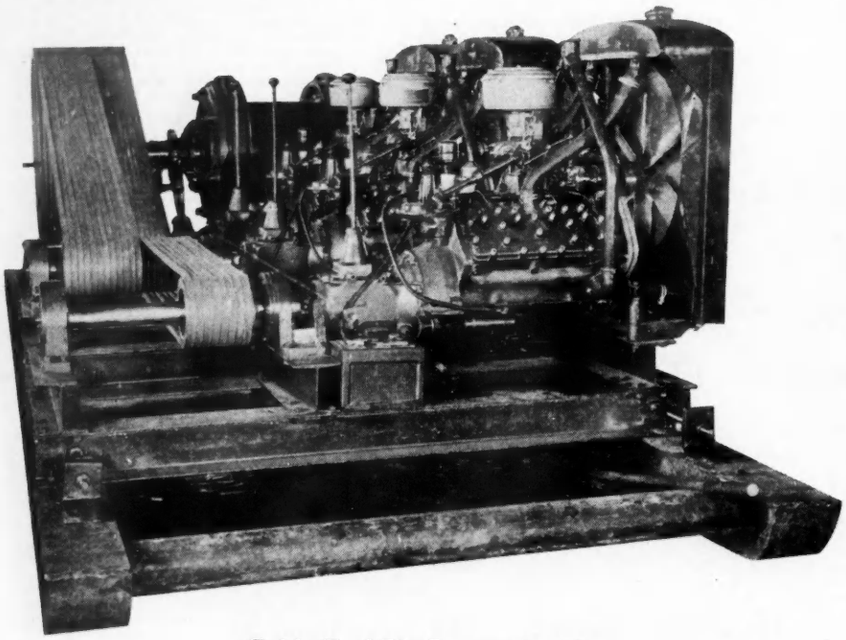
2,850′ of hole in 24 days



Cable Tool Rig Powered with
GENERAL POWER CONVERSIONS

The record time was made with a rig, using General Power Conversions of Ford V-8 engines, that drilled five previous wells and is still being used.

This production company is now using four triple power units, like the one shown above, and 26 single engine pumping units.

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If your local, authorized Ford dealer cannot supply you with information concerning these units, please send us his name along with your request.

For dependable, economical power, burning natural gas or gasoline, there is a single, dual, or triple General Power Conversion for every generating, pumping, or drilling job.

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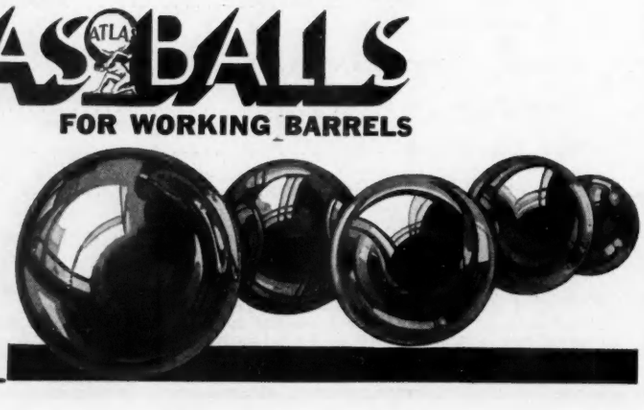
FOR ENDURANCE . . . INSIST ON

ATLAS BALLS

FOR WORKING BARRELS



Atlas Ball Co.
PHILA., PA.

LOOKING AHEAD

WITH THE EDITOR

Oil-World Exposition Opens Next Monday at Houston . . .

Products on Display to be Described . . .

AIME Meets at Oklahoma City this Week . . .

BIG things are coming.

The next two weeks are full ones for those interested in drilling and production technique and equipment.

October 11 the largest industry show of the year opens with the rise of the curtain on the Oil-World Exposition in Houston. New equipment on display, several engineering symposiums and the annual meeting of the Independent Petroleum Association of America take place in Houston during the show.

Oklahoma City steps out, too, with a program of such calibre for the petroleum division of the American Institute of Mining and Metallurgical Engineers that executives will stretch a point to see to it that their technical men get there. The engineers hold forth on October 7, 8 and 9.

For these reasons, the October 11 issue of THE OIL WEEKLY will bear down on coverage of the wealth of technical gems and new equipment making their debut during the next two weeks.

In connection with the show in Houston, this magazine will publish short descriptions and illustrations of practically all drilling, producing and pipe line equipment on display. Look these over so that you will be sure not to miss anything in the coliseum or under the big top outside. Keep your book, for the descriptions will refresh your memory on the way home.

If you can't make the grade to inspect the multitude of items on display personally, these written descriptions and illustrations will carry the show to you.

It goes without saying, of course, that THE OIL WEEKLY will be represented by a good man at both the Oklahoma City and Houston technical symposiums.

The changing panorama

this week

THE present situation of the oil industry is decidedly favorable, but more because of the October outlook than because of current statistics, which are not wholly encouraging.

The crude control program for October is the strictest for many months. The 6 leading states that yield 92 percent of U. S. production have in effect allowables below the Bureau of Mines estimates of demand—for the first time in a long period.

The allowables indicate that October probably will bring these favorable developments: (1) crude oil production will be in balance with or below market requirements; (2) some crude oil may be taken out of storage; (3) refinery activity will be cut back to more economic proportions; (4) inventories of gasoline and other refined products will be affected advantageously.

Statistics Not Wholly Favorable

Need for these improvements is revealed in current statistics of the industry. Wells and refineries have continued to turn out more oils than the markets have justified. In the week ended September 25 crude production was 21 percent higher than a year previously, and crude runs to stills were 15 percent heavier, although total demand for petroleum has been running only about 11 percent higher this year than last year.

Gasoline Stocks Excessive

Continued operation of refineries at record levels has interfered with the usual seasonal withdrawals from gasoline stocks, and those inventories are 16 percent higher than a year ago, although gasoline demand has been running only about 10 percent higher. This situation largely accounts for the recent unsettled state of gasoline markets.

Fuel oil inventories, however, are conducive to strong markets, being only 4 percent higher than a year ago, while demand is up about 10 percent.

Crude oil stocks have not changed materially in September, in consequence of stricter allowables, and are only about 4 percent larger than at this time last year. The crude stocks thus have not increased in the past year in proportion to the 11 percent gain that has occurred in petroleum demands.

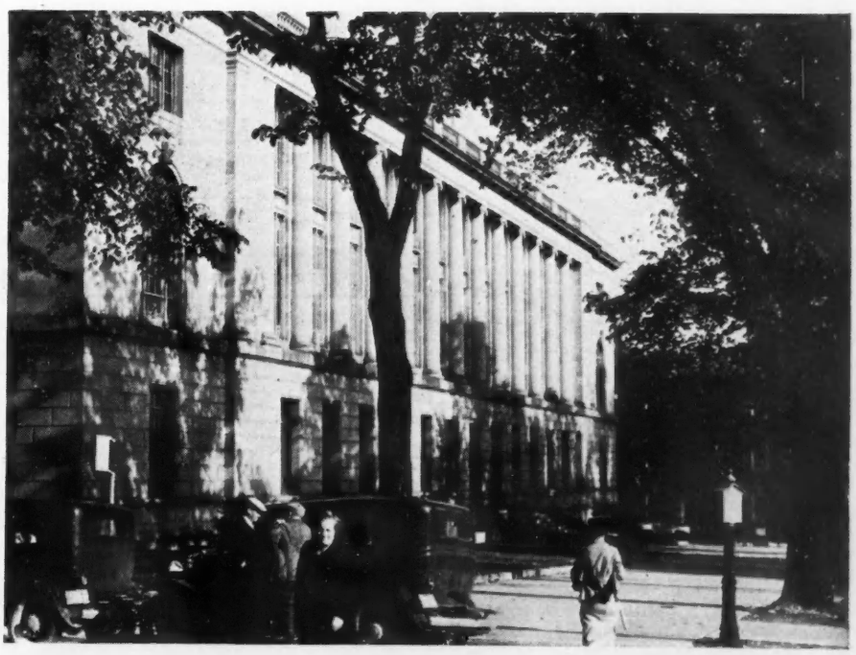
Pipe Line Proration Interrupted

The stricter allowables of October probably will prevent any further instances of proration of purchases by crude buyers, some of which have occurred in recent weeks.

A major company has changed its previously announced plan of withdrawing October 1 as a purchaser in the Lisbon field, North Louisiana, and will buy 5000 barrels a day after that date, as against 14,000 daily before.

Ruling Due in Labor Suit

The examiner for the National Labor Relations Board who last week concluded hearings at Houston on an alleged violation of the Wagner Act will study the evidence and submit his recommendations, and a ruling will be given within 60 days. A complaint was filed against American Petroleum Company by the Oil Workers International Union, charging the



THE NEW OIL CAPITOL is shown here. It is an exterior view of the federal building at Madison, Wisconsin, where the government's "conspiracy" charges against 24 companies, three trade journals and 44 individuals starts today. The trial, the largest trust suit in many, many years, is expected to last several months. The town of Madison is experiencing a regular "oil boom" with the army of defendants, witnesses, attorneys and newspaper men "leasing" all available quarters.

company interferred with rights of refinery employees to participate in activities of the C.I.O. union.

Black Bean for Pipe Lines

At the opening of the special tax-raising session of the Texas legislature last week, Governor James V. Allred urged that the bulk of the needed increase be provided by higher taxes on natural resources and pipe line companies.

"The pipe line companies alone could bear the burden of the social security program without impairing their earnings or their service," Allred asserted. "This would mean only $6,000,000 a year from the $78,000,000 profits which they have reported."

Comments by legislators indicated that the tax bill most favorable to the House is an omnibus bill. It appeared likely, however, that if the House should pass such a bill, the Senate will substitute for it a sales tax. It seemed probable that in such event the final result of the 30-day session would be no tax bill. Since most observers believe that two 30-day sessions will be held, no prediction could be made as to the final solution of the tax problem.

The Railroad Commission has begun adjusting October allowables and ordered increases for four fields near Corpus Christi and the Yates field in Pecos County.

★ ★ ★ ★ ★

Drilling results

Recent developments indicate the Permian Basin of West Texas will continue well to the fore in drilling and exploration news this year and in 1938. Important strikes come not one by one, but at the rate of two or more each week. During the week McCamey district of Upton County received an extension of 1½ miles south, a development which, due to the nature of leaseholds, assures a prolonged drilling program. In the same region were two semi-wildcat strikes along a northwest plunging anticline that parallels older production. In Crane County, a large producer in the new Jordan field by The Texas Company enhances the rating of the area as a crude reserve. A high structural position and development of six million cubic feet of Yates sand gas were recorded in a wildcat two miles north of Ogden.

Completion of an exceptionally prolific natural producer in Rotan, Fisher County, indicates continued exploitation.

East Texas field is not dead by a long shot. Completions there this week were at the rate of 10 per day, but companies are fearing the penalty for drilling the field too densely. Wildcatting in the general area, however, is disappointing recently.

In Coastal Louisiana two new fields are indicated for LaFourche Parish. Texas coast developments were less spectacular, being confined to a new sand discovery at North Cheek and the indication of a possible new field in Chambers County.

Kansas reported a new field in Ellis County and possibilities of three other strikes. A test in an old Barber County gas field is showing oil; Pawnee County's second wildcat producer was completed; and Bloomer, Chase, Trapp and Coralena fields were extended.

Wilcox production in the old Braman pool of Kay County, Oklahoma, was extended south during the week. Another southerly extension was affected at North Lucien in Noble County. In Lincoln County a community test continues to record showings which may result in discovery of a new field.

Lisbon field in North Louisiana, looked upon earlier in the year as a potential supplier of considerable crude, has had drilling cut down by withdrawal of Gulf Refining Company as a purchaser of about one third of the field's output.

Market briefs

Outlook—Hopeful in view of tight control of crude production.

Crude Market—Strict October allowables are steadying influence.

Refined Oil Markets—Prices unsteady in some areas.

CURRENT OPERATIONS

Week Ended	Daily Crude Production	Daily Crude Runs to Stills
September 25..	3,666,300	*3,455,000
Previous week.	3,671,200	3,400,000
Year ago.....	3,030,000	2,990,000

CRUDE STOCKS

DATE	Crude Oil (Barrels)
September 18.....	309,405,000
Week ago.....	309,054,000
Year ago.....	297,950,000

REFINED OIL STOCKS

DATE	Gasoline (Barrels)	Gas & Fuel Oil (Barrels)
September 25..	65,620,000	116,472,000
Week ago.....	66,057,000	116,178,000
Year ago.....	56,472,000	112,504,000

DRILLING

PERIOD	Wells Completed
Past week.....	659
Previous week.....	595
Year ago.....	492
Year Total:	
This year.....	22,009
Last year.....	18,261

* All time peak.

Technology

Corrosion problems in Western Kansas are becoming increasingly important. Old fields with plenty of water and new fields with definite promises of water encroachment are responsible. But operators there have been giving the problem thought. They have worked out some means of dealing with the situation. These remedies are not perfect in all cases, but so far they have resulted in a definite saving in lease operation costs. Frank Taylor tells about what has been done on page 17.

C. C. Herman has looked into the difficulties of moving heavy crude through lines when the temperature is low enough to make a leather jacket feel good. He has, as a result of this study, been able to make specific recommendations for moving the viscous material at all seasons. Herman's discussion is not technical, but it is worth money to the man who has been unable to meet, profitably, the problem of moving each month in the year crude with characteristics comparable to those of Talco crude.

There is still a great need for metals and alloys that can provide a higher degree of tensile strength and greater resistance to corrosion, says Rudolph Seiden, a consulting engineer who served his novitiate in the old country. The author tells in a brief manner of what has been done along these lines in Europe and goes more fully into a discussion of tenacity, a characteristic which has not been fully developed in modern irons and steels. He goes on to say, on page 34, that in the future more and more high-tensile, corrosion-resistant steels will be used for oil field and refining plant equipment.

While the problems of wet gas measurement vary greatly in different fields, there are seven common troubles, states H. F. Chapman in an article on page 24. After listing them he proceeds to discuss means for correcting these problems.

Oil in the Courts

Big Trust trial starts today in Madison . . . Draw additional jury names . . . Government names forty nine of its witnesses, others are to be called.

FINAL arrangements for the government's "oil conspiracy" case against major oil companies operating in the East Texas and Mid-Continent fields, many of their officers and three trade journals, which opens before Judge Patrick T. Stone in federal court at Madison, Wisconsin, at 9 a. m. this Monday morning, were being made as the week closed.

For many of the defendants and their attorneys, as well as their business and household staffs, the week was one of mild confusion as efforts were made to settle residences, apartments, hotel suites and offices. There was unpacking of personal and business effects to be completed before courtroom sessions began. During the trial, which is expected to last three months, individual defendants will be conducting their business affairs from Madison, utilizing short periods between morning and afternoon court sessions and evening hours.

Defense headquarters have been established in the Bank of Wisconsin building, one block from the federal building where the trial will be held. A private telephone switchboard links the headquarters with other offices, residences and apartments occupied by defense counsel and defendants in various parts of the city by direct wires.

Among the dwellings leased for the duration of the trial is the home of Mayor James R. Law, who has taken a smaller apartment for the winter.

Draw Jury Panel

Anticipating difficulty in selecting 12 jurors to hear the trial, court officials last week drew a group of 30 more candidates. Summons had previously been sent to 76, a number of whom have requested to be excused from service.

Among the last defense motions filed, was one that sought an immediate trial for Bernard L. Majewski, Chicago, vice president of Deep Rock Oil Company, who is under indictment with other defendants in the case coming to trial Monday. Government attorneys have strongly hinted that he would be summoned as a witness. He was an unwilling witness before the federal grand jury, and on that ground filed a "plea in bar" claiming immunity from trial. Judge Stone said he would rule on his plea ten days after he is called for trial.

In his demand for immediate trial, Majewski points out that, if he is summoned as a witness, he will have to spend the next three months in Madison and a separate trial later would result in unwarranted duplication of proof and put him to "unjustifiable delay, harassment and neglect of business" and expense. He is basing his demand to his constitutional right, under the sixth amendment, to a "speedy and public trial."

Witnesses Named

Government attorneys last week furnished defense counsel with the names of 49 witnesses who have been summoned to testify early in the trial. It was indicated that additional appearances would be ordered as the trial progressed and that the witness list may reach a hundred. Those summoned are:

C. J. Barkdull, Chicago; E. R. Lederer, Bradford, Pa.; J. G. Sinclair, Chicago; D. A. Brown, El Dorado, Ark.; J. H. Rohmer, New York; Phillip R. Phillips, Bartlesville; C. E. Davis, St. Louis; R. S. Orr, Wichita, Kans.; H. L. Stegall, Houston, Texas; J. F. M. Taylor, St. Louis; John C. Day, Tulsa; R. M. Cline, Tyler, Texas; J. A. Getgood, Chicago; R. L. Alexander, New York; M. G. Peeters, Milwaukee; P. H. Herzog, Kilgore, Texas; Charles S. Smith, Cleveland; E. M. Kelly, Bartlesville; H. Jacobs, St. Louis; John Dawes Ames, Chicago; B. F. Stradley, Bartlesville; E. A. Kermott, Kansas City; Mrs. Constance C. Parkard, Washington, D. C.; J. D. Collins, New York; R. E. Everitt, Wichita, Kans.; A. H. Sus, Chicago; Mildred Dugan, Wichita, Kans.; W. L. Schafer, St. Louis; Emby Kaye, Tulsa; E. J. Glover, Duncan, Okla.; A. W. Frey, St. Louis; T. E. Swigart, Houston, Texas; Clara Gartman, Tulsa; A. P. Ruether, St. Louis; Harry K. Jenkins, Des Moines, Ia.; Geo. Kinter, Tulsa; R. H. Dangerfield, St. Louis; T. J. Heard, Shreveport; E. M. Crone, New York; D. D. Ginter, Kansas City; L. H. Poland, Kansas City; J. V. Dippel, Kansas City; J. H. Muller, New York; C. W. Snider, Chicago; G. G. Brownell, New York; P. W. Riggins, Fort Worth; R. L. Bosworth, New York; W. J. Burker, New York; and W. T. Dinkins, Fort Worth.

William J. "Wild Bill' Donovan heads the staff of 45 defense attorneys who will take part in the trial.

Seek Lease Cancellation

Cancellation of a lease on SE SW 23-21n-10w, Cotton Valley field, Webster Parish, and $25,000 damages, was filed last week in 26th Louisiana judicial district court at Minden, La., by S. D. Coyle against Ohio Oil Company.

The point at issue is the alleged drainage of the Travis Peak horizon at 5500-5900 feet by Ohio Oil Company's Holloway B-6, discovery and only Travis Peak oil well in Cotton Valley. It is in NE SW 23-21n-10w. Ohio has completed a lower Marine gas-distillate well on Coyle's lease but he has claims in the suit that "on SE SW 23-21n-10w, that Ohio Oil Company did drill a well for oil and gas and that when they reached the Holloway depth of 5545 feet or thereabouts they encountered 29 feet of highly saturated sand, bearing oil, gas and/or distillate, and that on a 24-hour test made thereon the said well produced in excess of 250 barrels of rock oil and distillate per day out of approximately three million feet of gas, and could have been made into an oil well if properly handled, but that after making said test and without further ado, defendant abandoned said level, failed to complete the well and continued drilling down to 8100 feet where they did complete an oil, gas and distillate and rock oil well, which is producing at the present time."

Lawyers Talk a Lot

Oil companies have established headquarters in the Bank of Wisconsin Building at Madison during the anti-trust trial, starting October 4. So large did the volume of business become that it was necessary to put in a special switchboard with 15 outside trunk lines and 38 inter-office extensions. Other lines link the headquarters with homes and offices of attorneys and defendants in other parts of the city.

Proration Matters

Oklahoma, Kansas and New Mexico fix allowables for October below Bureau quota . . . Texas makes readjustments but still remains under Bureau quota.

THOSE states that had not established their October allowables during the preceding week did so last week, and practically all followed Texas in cutting below the Bureau of Mines. However, last week Texas readjusted some field allowables and it now is but 24,511 barrels below the Bureau of Mines quota. The increase last week amounted to 12,939 barrels.

Oklahoma fixed its allowable at 600,000 barrels per day, which is 29,000 barrels below the amount recommended by the Bureau. Kansas allowable for October will be 193,800 barrels, 6100 barrels under the Bureau of Mines. New Mexico announced a reduction of 10,500 barrels, bringing it down to 104,000 barrels daily and 2400 barrels under the Bureau.

Texas allowables increased

The Texas Railroad Commission has issued orders increasing allowables in four Southwest Texas fields in the Corpus Christi area. All the new orders are to become effective October 1 and the new allowables will substitute for those provided in the commission's order of September 21 which fixed October allowables.

The allowable for the New Saxet Frio is set at 21,415 barrels daily with a maximum allowance of 100 barrels per well. This will be substituted for the former allowable of 18,207 barrels and a maximum allowance of 85 barrels per well.

The allowable for the Plymouth field was 11,896 barrels with a 90 barrel top. The new order provides for 14,476 barrels for the field and a maximum of 110 barrels per well.

The Placedo allowance has been increased from 8442 to 10,615 barrels. This means an increase in the top allowable per well from 58 to 75 barrels.

In the Heyser field the allowable has been raised from 4259 to 4556 barrels daily with a maximum top allowable of 75 barrels per well instead of 60 barrels as originally provided.

The commission also ordered an increase of 4681 barrels daily for the Yates field, Pecos County, West Texas, bringing the allowable there to 30,500 barrels daily.

The increases totaled 12,939 barrels daily, and raised the total Texas allowable to 1,416,789 barrels daily as of October 1. Last week the commission had ordered a cut of 1994 barrels for Goldsmith.

Texas field rules

The Texas Railroad Commission has issued rules providing for 10 acre spacing in Avoca or Rotan field in Jones County. This will permit wells to be drilled 330 feet from lease lines and 660 feet apart.

The proration system provided is acreage plus potential with 50 percent of the oil allocated on each factor. Ten acre units are used to determine the acreage factor, but as much as 19 acres may be included in the final unit on any lease to avoid the necessity of drilling an additional well.

The rules require 50 feet of surface casing and an oil string set no higher than the gas-oil contact and cemented 500 feet above the shoe.

The maximum gas-oil ratio allowance is 2000/1 and a total displacement factor is provided for those wells producing with an excessive gas-oil ratio.

Five acre spacing is provided in another order covering the south Calliham or Claunch area in McMullen County. This will permit wells to be drilled 233 feet from lease lines and 466 feet apart. The spacing is the only rule provided for this field.

Gas order effective

On Monday, September 27, the order of the Texas Railroad Commission requiring the introduction of a malodorant into all gas sold in Texas became effective.

The order was issued under provision of House Bill 1017 passed by the Texas Legislature last spring after the New London School disaster.

The Railroad Commission plans to divide the state into areas and to assign an engineer from the Gas Utilities Division to each of these areas. Actual tests to determine the effectiveness of odorizing agencies inserted in gas will be made in homes beginning at once.

Legislative Affairs

Special Texas legislature looks to oil for additional tax money . . . Many such bills introduced . . . House has designed omnibus bill with higher oil tax a part.

A DETERMINED effort on the part of Governor James V. Allred to require oil companies, pipe line companies, and corporations to pay the Texas tax bill was initiated last week. As the special legislature got under way, a large number of bills providing for increased levies on the oil industry were introduced. Later an omnibus bill designed to raise $10,000,000 annually was before the House. It provided for higher taxes on several branches of the industry.

In his opening message, Allred declared that "I still think we ought to raise this money from . . . . increased natural resource taxes, from franchise taxes, from taxes on the earnings of pipe line companies, utilities and other corporations.

The next day Senator T. J. Holbrook of Galveston attacked the governor as inconsistent and declared that no additional taxes are needed now.

The Holbrook attack brought answers from House members.

Omnibus Bill Designed

An omnibus tax bill designed to raise $10,000,000 annually has been agreed upon by members of the subcommittee of the House Revenue and Taxation Commission, which has been designated to study bills of this type. It will be presented at the meeting of the committee set for Monday, October 4. The composite bill would increase the tax on crude oil to 4 cents per barrel while oil sells for $1 or less, and 4 percent of the value thereafter. This would raise $7,144,763 more annually. The tax on natural gas would be increased from 3 to 4 percent of the value and would raise an additional sum estimated at $401,000 per year. The tax on carbon black would be raised to 4.4 percent of the value and is expected to produce annually an additional $103,418. The remainder of the amount sought would be obtained from taxes on sulphur,

CARDENAS ASKED TO REFUSE SANCTION TO HITLER EMISSARIES

Mexico City, Mexico. — The senatorial revolutionary bloc has petitioned President Lazaro Cardenas to refuse sanction to the two Hitler emissaries here September 30 in connection with negotiation of a German-Mexican petroleum agreement to acquire Mexican oil or by-products either from official or private sources.

The revolutionary bloc of the senate asserts it is informed that such oil is ultimately intended for the Spanish rebels.

Hitler's envoys have started negotiations with the Mexican government and General Administration National Petroleum, the government's oil company, in connection with the German-Mexican oil pact.

telephone, telegraph companies and other utilities, picture shows and cement.

The committee planned an increase of 46 percent in arriving at its rates. This is the type of bill most likely to meet with approval in the House.

Many Oil Bills Introduced

Discarding oratory for action, the House began receiving tax bills including 35 on the first day they could be filed. Bills which would affect oil companies are listed below:

House Bill 6, by Baker, is a bill to provide a gross receipts tax similar to that now in effect in Indiana. It would provide a tax of 25 cents per $100 on all sales up to $50,000, and 35 cents on sales above $50,000. Collections under this method would be credited against ad valorem and taxes, and sales of agricultural products would be exempt.

House Bill 9, by Skaggs, is an omnibus tax bill. It provides for a tax of 6 cents a barrel on oil, ¼ of 1 cent on natural gas, 1/6 of 1 cent a pound on carbon black, and $2 a ton on sulphur. This bill carried an important amendment to the present oil tax law which has been recommended by the state comptroller. Under this provision no oil could be removed from any lease until the tax has been paid.

House Bill 11, by Sharpe, provides for a tax of 10 percent of the value on natural gas.

House Bill 13, by Reed of Bowie, provides for a tax of 10 cents per barrel on crude oil.

House Bill 18, by Sharpe, also provides for a 10 percent tax on crude oil.

House Bill 23, by Morris, is another omnibus tax bill. It provides for a tax of 5 cents per barrel on oil, ¼ of 1 percent of the value on natural gas, 6 percent of the value on carbon black, $1.90 on sulphur, and 1¾ percent of the gross receipts of public utilities other than the telephone companies.

House Bill 25, by Herman Jones, is a franchise tax bill. This bill is one of the most important introduced, as it is backed by the administration, and it is designed to increase income taxes on corporations. The bill is extremely long and involved and completely revises the method of determining capitalization subject to such a tax in Texas and attempts to bring in for taxing purposes all the assets of any corporation originating and used in Texas. In defining "capital" the bill provides that this term ("capital") shall include all subscribed, issued and outstanding capital stock, all undivided profits, and all surplus item, and the average monthly outstanding indebtedness. To arrive at the latter, Jones would add the total indebtedness of each month and divide the total by 12. Indebtedness would not include unpaid current operating expenses. To get at "no par value stock" the state would consider it to be of the value received at the time of issuance. Net assets would be the determining factor for those corporations having no capital stock.

House Bill 34, by Holland, is a third omnibus tax bill. It provided a tax of 5 cents per barrel on oil, 6 percent of the value on natural gas, and $1.50 per ton on sulphur.

House Bill 35 by Skaggs, would bring gas pipe line companies and all other classes of common carrier pipe line companies under the intangible asset tax law.

Labor Situation

Labor organization control urged . . . Ruling is step nearer in Houston dispute . . . Pure Oil inaugurates old age protection . . . Oil pay declared higher.

In a Pennsylvania meeting of oil men, a speaker declared that there is need for controlling labor organizations and making them responsible, and that business should try to revive co-operation between managements and the unions.

Meanwhile, further operation of the Wagner act was seen, as a ruling came a step nearer on charges a company at Houston had violated the law. The president of a major company in a letter to stockholders commented on favorable relations in the oil industry between management and labor. Another company announced revision of its old age benefits plan, in consequence of enactment of the federal social security law.

Control of Unions Urged

"It is of national concern that labor organizations be controlled and made responsible," Prof. Arthur H. Reede of Harvard University told delegates attending a joint conference of petroleum refiners and marketers credit groups of eastern and western Pennsylvania, at State College.

Opposition to unionization shown in steel strikes last spring is the wrong kind and multiplies difficulties instead of settling them, he said. Efforts to destroy the C. I. O. were merely leading to further trouble.

"Students of labor believe that industrial unions are better than craft unions," he declared. "Industrial unions lead to less strife in that trouble is centered in one industry rather than cutting across several."

He urged business to make every effort to bring the C. I. O. and the A. F. of L. together so as to revive the union and management co-operation which, he said, was almost a real thing a decade ago.

Hearings Continued

Hearings were continued at Houston before a labor board on charges the American Petroleum Company violated the Wagner labor act, allegedly having interfered with employes in their participation in union activities.

The company is contesting a National Labor Relations Board complaint that it fostered and dominated an "employes' federation" and refused to negotiate with the Oil Workers International Union, oil union of the Committee for Industrial Organization.

Attorneys for both sides last week agreed to stipulate that 91 refinery employes of the company now hold membership in the employes' federation. The secretary of the C.I.O. union testified that 107 of the total of 140 employes of the plant belong.

Examiner William Griffen of the National Labor Relations Board, who conducted the hearings on the charges against American Petroleum Company, was scheduled to leave Houston Thursday for Dallas for another hearing, after concluding the Houston hearings.

He will study the evidence given at the Houston hearing and submit his recommendations, and a ruling will be given within 60 days. The complaints against the company were brought by the Oil Workers International Union, charging the company with violation of the Wagner Act.

Pure Provides Benefits

Pure Oil Company plans to provide old age protection for its 6500 employes to augment that of the federal social security act, through revision of a plan heretofore used. Under the new plan, employes' payments and benefits, on annual earnings of $3000 or less, will be cut in half, beginning January 1, 1938. The change is intended to meet the situation created by the old age benefits section of the federal law. The company will continue to pay more than half the total cost of the plan.

Retirement payments under the Pure Oil Company plan will start at the age of 65 for men and 60 for women. The participants at those ages will begin to receive monthly checks which in two years will equal all they paid in and continue at the same rate.

Oil Workers' Pay

In connection with a dividend check mailed out to stockholders, John A. Brown, president of Socony-Vacuum Oil Company, distributed a letter in which he declared that an outstanding achievement of the petroleum industry in the past 15 years has been a sharp reduction in the price of its product plus a marked increase in the return to labor, although the reduction of gasoline prices has been obscured by increased taxes.

The point was stressed that the industry did not achieve the price reduction at the expense of labor. "The average hourly wage rates of refinery employes have increased over 50 percent in the past 15 years," it was asserted.

Figures taken from Socony-Vacuum's records show that the average hourly wages at an eastern refinery amounted to 67 cents in 1922 and increased to $1.07 in 1937. On the other hand, the average retail price of gasoline, excluding tax, as compiled from 50 representative cities, declined from 24.82 cents a gallon in 1922 to 14.49 cents in 1937.

"Disregarding the wage rate and considering only money carried in the pay envelope every week, the refinery worker, at the end of his 15-year period, was getting about 20 percent more money for 25 percent less working time; and his product, excluding tax, was 42 percent cheaper to the consumer."

Oil at Conventions

Conservation, engineering and marketing problems are discussed by gas men . . . West Coast A.I.M.E. holds an interesting technical meeting . . . Meetings planned.

A.I.M.E. West Coast

PAPERS dealing with outstanding engineering problems in the oil industry filled a day's session of the petroleum division of the American Institute of Mining and Metallurgical Engineers at Los Angeles on October 1. Honor guests included R. C. Allen, president, and A. B. Parson, secretary, of the national headquarters of the organization.

R. P. McLaughlin was in charge of plans for the Los Angeles meeting and was assisted by E. K. Parks, program chairman; W. H. Geis, entertainment chairman; John Herman, local president of the group, and G. A. Joslin, secretary.

Discuss New Strikes

Outstanding recent discoveries in California were handled in papers by prominent engineers. This was the first meeting of oil men in the state since the coming into prominence of several new fields. These new discoveries include Santa Maria Valley, Wilmington, El Segundo and Ten Section.

Other sessions dealt more with engineering and operating practices. Some of the papers presented at these sessions are abstracted in the following paragraphs:

Heating Crude Emulsions

R. W. French, Continental Oil Company, talked on "Heat Utilization in Dehydrator Plants."

The necessity for heating most crude oil emulsions during treatment to meet pipe line specifications provides a profitable setting for the application of efficient heat exchange equipment, he stated. Centering about the use of as direct gas-fired heater of the pipe still type, the proper exchange of heat between emulsions, waste water, clean oil, exhaust steam, and cooling water may achieve considerable fuel economy as well as more efficient operation.

Gravel Packing Wells

"Some Considerations in the Selection and Installation of Gravel Pack for Oil Wells," was the title of a paper by C. J. Coberly and E. M. Wagner, of Kobe, Inc.

In many fields, it is stated, it is impractical to set perforated liners to hold back all the sand, due to fineness of sand, low bottom-hole pressures, etc. In such cases gravel packing offers a practical solution to the sand problems. Wells at Oklahoma City in the Wilcox sand are a good example. Completed open-hole they produced considerable sand during flowing and gas lift, resulting in large cavities around the bore. Placed on the pump sand trouble continues with attendant pumping difficulties. Perforated liners with a mesh to hold all the sand are impractical due to low bottom-hole pressures of 20 to 60 pounds per square inch. It was suggested to set a perforated liner and fill the cavity around the bore with gravel. Methods of selecting and placing the gravel are discussed. Gravel packing should stop sand trouble but allow maximum production in spite of low prevailing formation pressures.

Flow Equilibria

E. N. Dunlap, Standard Oil Company of California, attracted considerable attention with his discussion on "Flow Equilibria of Two Immiscible Liquids in Unconsolidated Sands."

It is generally recognized, Dunlap asserted, that oil sands contain connate water in amounts varying up to 50 percent of the pore space. Laboratory experiments were performed on artificial cores in order to study the influence of this water on the permeability of sands to oil. The experimental results demonstrated that the presence of interstitial water in excess of 18 percent of the pore space causes a pronounced reduction in the permeability to oil. This indicates that if methods were devised which would remove water from the sand immediately surrounding a wall, they should prove useful in increasing the productive capacities of wells and might retard the intrusion of edgewater into wells. The laboratory observations also indicate that it is possible to produce oil from sands having 50 percent water saturation without having water appear in the well.

Engineering Progress

Stanley C. Herold, consulting engineer of Los Angeles, talked on the subject of "A Quarter Century of Progress in Petroleum Engineering Concepts."

A quarter of a century ago our concepts respecting oil and gas reservoirs were crude, it was pointed out. At that time attention as confined to the well, whereas the reservoir which supplies the well now receives its consideration. Events and conditions within this reservoir have been subjected to detailed study for the purpose, first, of understanding the well in its performance and, secondly, of planning the best methods of developing the field at large. Theory and practice in this period have been drawn more closely together. Research and education in petroleum engineering have undergone modification. By looking backward we note the change in our concepts respecting reservoir functions. Our position today is not yet entirely satisfactory. We have made progress, and we shall continue to make progress, in the quarter century now beginning. Petroleum engineering offers an opportunity to young men of studious mind and proper training in the physical sciences—geology, physics, chemistry, and mathematics.

Gas Meeting

CONSTRUCTIVE conservation and means of retaining the domestic market for gas now being threatened by other fuels were most important of the problems studied by natural gas company delegates who attended the Nineteenth Annual Convention of the American Gas Association held in Cleveland last week. Engineering progress in the producing and transmission branches was the subject of several papers delivered before the technical session.

Officers Elected

N. C. McGowen, president of United Gas Public Service Company, was advanced from the position of first vice president to the head of the organization. He succeeds Herman Russell, president of Rochester Gas & Electric Corporation, Rochester, N. Y. Other officers who will serve during the coming year are Conrad N. Lauer, president of Philadelphia Gas Works Company, Philadelphia, first vice president; Walter G. Beckjord, vice president and general manager of Columbia Gas & Electric Corporation, New York, second vice president, and J. F. Rooney, New York, reelected treasurer.

The Association of Gas Appliance & Equipment Manufacturers, holding their annual meeting in conjunction with the AGA convention, elected Merrill N. Davis, Bradford, Pa., president; E. R. Guyer, Chicago, vice president, and Donald McDonald, New York, re-elected treasurer.

New directors who will serve for two years are Charles M. Cohn, vice president Consolidated Gas, Electric Light & Power Company, Baltimore; L. B. Denning, president Lone Star Gas Company, Dallas; C. E. Gallagher, president East Ohio Gas Company, Cleveland; B. J. Mullaney, vice president Peoples Gas, Light & Coke Company, Chicago; T. J. Strickler, vice president Kansas City Gas Company, Kansas City; Otto Snyder, president New York Power & Light Company, Albany; F. H. Adams, vice president Surface Combustion Corporation, Toledo; J. S. Dehart, Jr., president Isbell Porter Company, Newark, New Jersey; George S. Hawley, president Bridgeport Gas Light Company, Bridgeport, Connecticut.

Section chairmen named are Robert W. Hendee, Colorado Interstate Gas Company, Colorado Springs, natural gas section; J. V. Postels, Philadelphia, technical section; Merrill N. Davis, vice president S. R. Dresser Manufacturing Company, Bradford, Pennsylvania, manufacturers section; Henry Obermeyer, New York, advertising; Hale A. Clark, Detroit, industrial gas; Hugh Cuthrell, Brooklyn. commercial; and D. H. Mitchell, Hammond, Indiana, accounting.

The Charles A. Munroe award, high-

[*See Gas Meeting, page 49*]

Strict October Control Encouraging

Allowables of 6 leading producing states below Bureau of Mines forecast of demand for first time in many months . . . Curtailment of refinery runs and withdrawal of some crude from storage likely.

By L. J. LOGAN, Associate Editor

THE law of supply and demand, which can be as beneficent to its respecters as it is inexorable with its defiers, currently is on the side of the petroleum industry.

The conservation officials and the industry have invoked for this month a program of crude oil production control that conforms closely with indicated market requirements, thus submitting to the law of supply and demand. And consequently the industry in October is due the rewards of the law-abiding.

Strict Control Scheduled

The October program of crude control is, in fact, the strictest for many months. For the first time in a blue moon, the 6 leading producing states of the country have aggregate allowables below the market demand as estimated by the Bureau of Mines.

This means that actual production is likely to be virtually in balance with consumption, if not somewhat short of the current needs. For these 6 states yield about 92 percent of all United States production, and in the aggregate they adhere closely to their state allowables.

October Prospects Good

The regulation of crude production, lax in August, was tightened in September, with beneficial results; and has been further tightened in October, promising even better conditions for this month.

Ultimately, the effectiveness of the October control program must be measured by the fluctuations that occur during the month in the inventories of crude and refined oils.

But the available information indicates that the program will have an exceptionally favorable effect on the inventory situation. Whereas earlier months this year brought additions to crude storage and the building up of a greater supply of gasoline than prevailing consumption justified, the October allowables probably will result in some withdrawal of crude from storage.

The smaller crude production, under the tightened allowables, is likely to result, furthermore, in needed curtailment of refinery operations, smaller output of gasoline, and accelerated withdrawals of gasoline from storage.

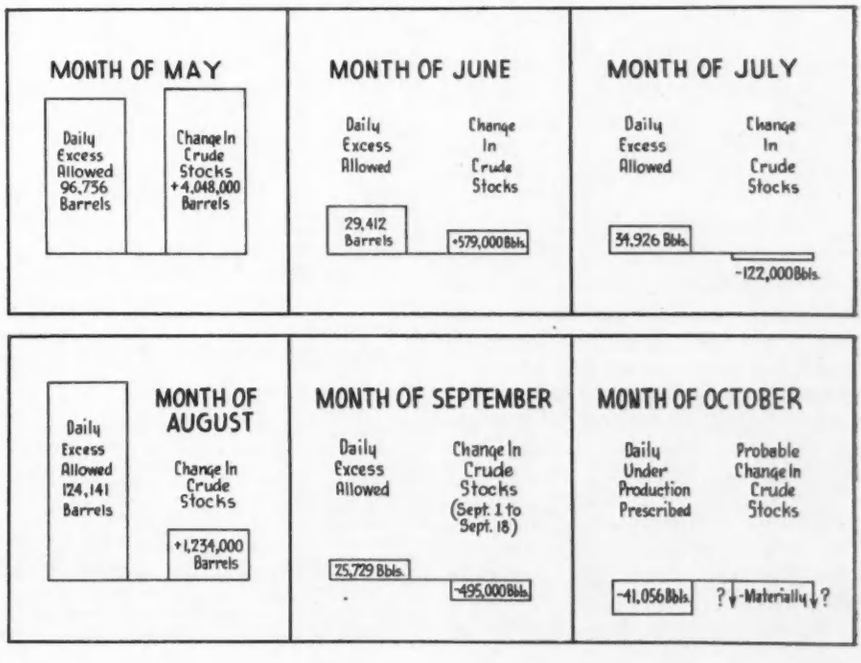
Expected Benefits Needed

All of these probable occurrences are needed to restore stability in the industry. For even in September, with allowable crude production somewhat tightened, there persisted various instances of localized overproduction of crude, as well as a national excess of refinery activity and an over-supply of gasoline.

It is true that crude stocks have not shown material change for September. But that fact was not so much the glow of health as it was the flush of fever, for some of the crude that was consumed merely was converted into gasoline that did not get beyond the tanks at the refineries. Crude runs to stills again were at all-time peak proportions in September, and more gasoline than necessary was made. Gasoline inventories were further reduced in September, but the gasoline market would have been in better condition if the supplies turned out by the refineries had been

Effect of Allowables on Crude Stocks

Chart showing how crude stocks have been affected by production permitted by the 6 leading producing states in excess of Bureau of Mines estimates of demand.



Effect of State Allowables on Crude Stocks

MONTH	Bureau Forecast of Demand	†Daily Allowable for 6 Leading States	Excess of State Allowables		Stocks at End of Month	Stock Change in Month
			Barrels	Percent		
1937:						
January	2,770,700	2,882,181	111,481	4.0	288,184,000	— 1,425,000
February	2,835,300	2,983,596	148,296	5.2	289,972,000	+ 3,213,000
March	2,924,400	3,096,142	171,742	5.8	297,496,000	+ 7,524,000
April	3,006,600	3,081,699	75,099	2.5	304,161,000	+ 6,665,000
May	3,083,100	3,179,836	96,736	3.1	308,209,000	+ 4,048,000
June	3,109,900	3,139,312	29,412	0.9	308,788,000	+ 579,000
July	3,159,700	3,194,628	34,926	1.1	308,666,000	— 122,000
August	3,196,600	3,320,741	124,141	3.9	‡309,900,000	+‡1,234,000
September	3,234,600	3,260,329	25,729	0.8	§309,405,000	—§ 495,000
October	3,271,400	3,230,344	*41,056	*1.3	.....	.....

† The 6 leading producing states are: California, Kansas, Louisiana, New Mexico, Oklahoma and Texas.
* State allowable below Bureau of Mines estimate of demand.
‡ Estimated from reports as of August 28 and September 4.
§ Latest available figure is for September 18.

smaller and if more had been taken instead from the storage tanks.

Gasoline inventories at present are about 16 percent larger than at this time last year, and such an increase is not fully warranted, as gasoline demand has been running only about 10 percent higher this year than last year. Not only statistically, but also more concretely, in the form of price weakening and market unsteadiness, the gasoline situation has proved in recent weeks to be in need of improvement.

Fuel oil inventories, in contrast, have continued favorable. Despite additions to storage in recent weeks, the present supplies appear comparatively small in relation to the heavy prevailing and prospective demand. The inventories are about 4 percent larger than a year ago, but the demand for fuel oil is up about 10 percent. This inventory situation apparently is largely responsible for the continued strong market for fuel oils.

The fuel oil situation presents further evidence, if any is needed, of the desirability of improvement of the gasoline situation. Since a good inventory situation for fuel oil is accompanied by a strong market for that product, it is indicated that a better inventory situation for gasoline similarly would promote a stronger market for the gasoline.

Refinery Activity Great

Clinching evidence that the curtailment program for October is well-advised is furnished by the statistics on refinery operations. For lately the plants have been processing about 15 percent more crude oil than at this time last year, while the total demand for petroleum has been running only about 11 percent higher.

The statistics on refinery operations and fluctuations in stocks of the refined products probably are more significant than figures on crude oil stocks.

For it has been demonstrated in recent weeks that unfavorable situations may arise even while crude stocks are being held about stationary, since surplus crude oil may go not necessarily into storage but instead into the refinery stills and then accumulate at the plants as surpluses of refined products.

Stocks Reflect Excesses

But even the crude stocks in some earlier months this year gave evidence of excesses of output at the wells, as more or less heavy additions to crude stocks occurred, despite record-breaking activity of refineries and excessive output of gasoline and some other products.

Similarly, the crude stocks have roughly reflected the temporary loosening of allowables in August and the subsequent tightening of the quotas in September.

And the crude stocks probably will reflect also the further, exceptional tightening of crude control in October.

Storage Decline Indicated

It appears likely that the October allowables will result in some withdrawal of crude oil from storage, and available facts and figures indicate that the withdrawal may be between 1,000,000 and 2,000,000 barrels.

However, October weather varies considerably from year to year, and if the weather proves mild, peroleum consumption will be stimulated by protracted heavy motoring, while if it is cold, the demand will be smaller. The weather therefore will have a material effect on crude storage, with output of the wells already predetermined by the state allowables, and with the storage tanks furnishing the necessary flexibility in supplying the raw material to the refineries.

Allowables Affect Stocks

The forecast that crude stocks may show a substantial decrease in October is based on a comparison of the effect of state allowables on inventories in recent months.

The six leading producing states, Texas, California, Oklahoma, Louisiana, Kansas, and New Mexico, accounting for about 92 percent of all United States production, in June had state allowables aggregating 29,412 barrels daily or 0.9 percent more than the Bureau of Mines forecast of demand, and crude stocks during the month increased 579,000 barrels. In July the allowables exceeded indicated demand 34,926 barrels daily or 1.1 percent, and crude stocks decreased 122,000 barrels within the month. In August the allowables were above demand 124,141 barrels daily or 3.9 percent, and crude stocks rose about 1,250,000 barrels. In September the allowables were cut back and exceeded indicated demand only 25,729 barrels daily or 0.8 percent; and with that degree of curtailment in effect, crude stocks apparently were about the same at the end of the month as at the beginning. The stocks were reduced about 500,000 barrels from September 1 to September 18, but figures are not available on results in the latter portion of the month.

For October the six states have allowables aggregating 41,056 barrels a day or 1.3 percent less than the estimated demand. This indicates that a substantial withdrawal from crude stocks may occur in October.

State Allowables and Bureau of Mines Estimates of Demand for October

(Barrels Daily)

STATE	Bureau of Mines Recommendation	State Allowable Beginning of Month	Excess of State Allowable	Percent Excess
California	660,000	660,000	.....	....
Kansas	190,900	193,800	2,900	1.5
Louisiana	254,600	266,700	12,100	4.8
New Mexico	106,400	104,000	2,400	2.3
Oklahoma	629,200	600,000	*29,200	*4.7
Texas	1,430,300	1,405,844	*24,456	*1.7
Total six states	3,271,400	3,230,344	*41,056	*1.3
Total nation	3,568,100	.....	.....	....

* State allowable below Bureau of Mines allocation.

Corrosion Problems

OF WESTERN KANSAS INCREASING WITH

Water Encroachment

By FRANK TAYLOR, Staff Writer

CORROSION is becoming an increasingly serious problem in Western Kansas. Much progress has been made in combatting the influences of sour fluids and gases by selection of equipment. Studies made of characteristics of the producing zones have brought out facts relative to sources of the more dangerous production.

Casing and producing practices have been developed that retard corrosive effects, and by lengthening the life of lease equipment tend to increase materially the economic production life of wells and fields.

Degrees of Corrosion

Comparative analysis of corrosive conditions has given information of value to preventive engineering and established a rule of thumb method of gauging the probable corrosive degree of crudes of the various formations. It is far too early to draw conclusions as to ultimate additional costs of maintenance at the well due solely to action of corrosive crudes, but one firm has figures to indicate that on some leases this increase may mount to 59 percent over normal maintenance. Production from the many pools that have been opened within the past 18 months has not yet been of sufficient volume to allow a forecast of corrosive effects, but from all indications the same factors are prevalent in the newer areas.

Age Related To Corrosion

Early investigations into the factors entering into the Kansas corrosion problem developed that production of two formations in particular was almost invariably corrosive. The strata were Siliceous lime and Mississippi chat. More recent study has tended to prove further the earlier investigations condemning these strata. The result has been the general acceptance of the rule that "The older the geologic age of the producing strata, the more corrosive to equipment will be the production." There are but few exceptions to this rule when it is applied to the western part of Kansas.

Breaking down 29 major pools of 12 western Kansas counties, 18 are producing from Siliceous lime, either alone or in addition to other formations, 6 are producing from Mississippi chat, but not from Siliceous lime, and 5 are producing from formations that are neither chat nor Siliceous lime. The pools upon which these calculations have been based are sufficiently scattered to make the survey an impartial one. In one respect they emphasize the importance and wide distribution of Siliceous lime production. Other formations of importance to crude production, listed from those of more recent origin to those of greater geologic age are: Lansing-Kansas City limes, including Oswald, Hunton and Viola, which occur generally south of the Central Kansas Uplift, and the Gorham and Reagan sandstones lying immediately over the Pre-Cambrian basement rocks.

Problems Grow With Life of Field

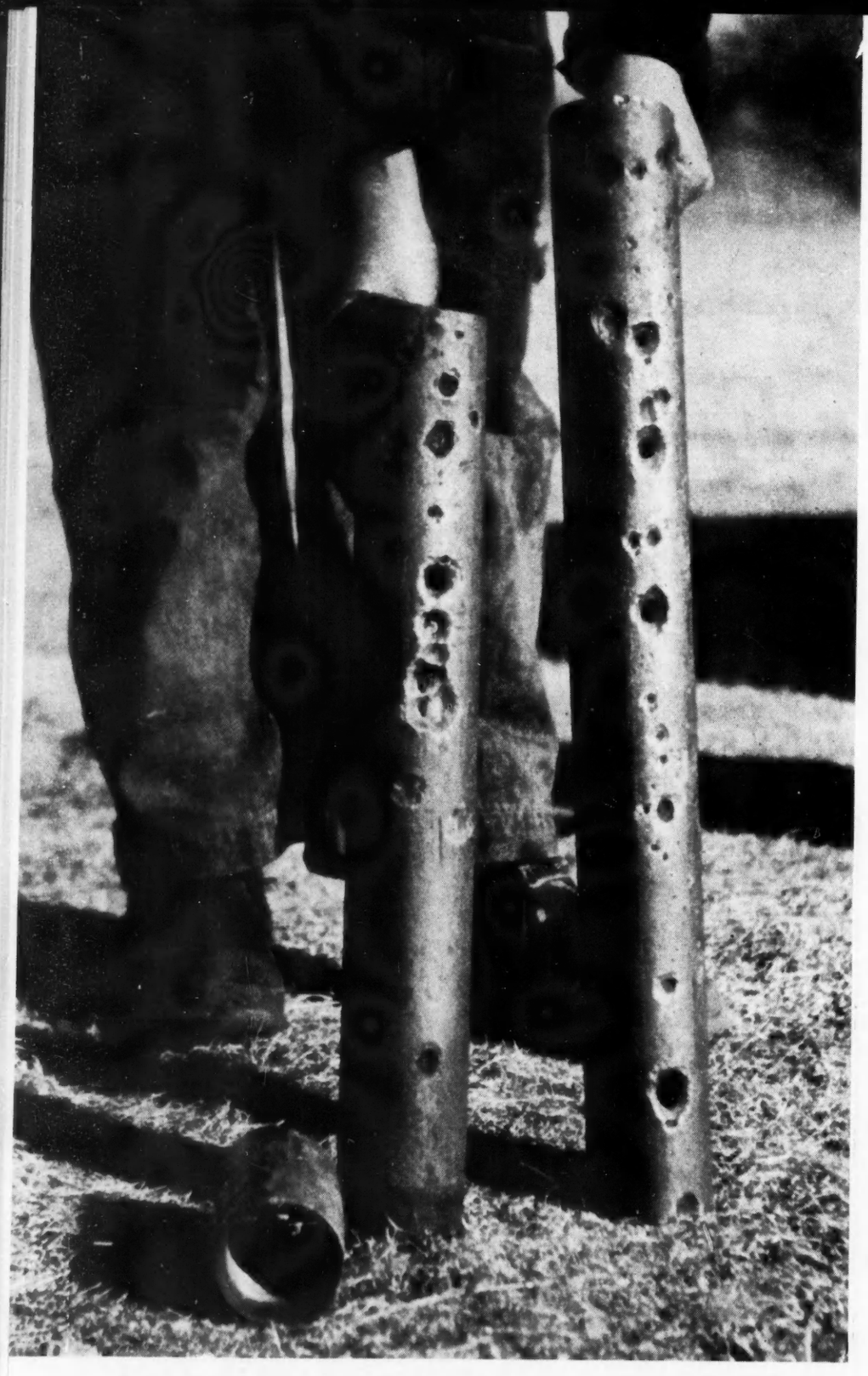
It seems that corrosion problems are not of a serious nature during the early life of fields of the area. In this respect corrosion difficulties appear to follow in a general way the encroachment of water. The degree of corrosive action increases as pools are depleted, adding to an already great lifting cost. This added expense to a normally decreasing crude recovery per barrel of fluid lifted, whether in replacement of equipment or pre-

PREVENTIVE engineering often is worth more in dollars and cents to the producer than curative engineering. Corrosion definitely offers an opportunity for application of this principle.

With water encroachment a matter of inconvenience to many operators in Western Kansas, indications are it will become more of a problem as time goes on.

This article deals with some of the means devised to combat, or retard, corrosion in the region. It tells of what corrosion is doing to material in the well and on the lease. And, for the benefit of the producer there and in other areas having to contend with brine, hydrogen sulphide, and other agents of corrosion, it tells of some of the means employed to cut down the costs of replacements on tubing, casing, rods, lines and tanks.

If you are interested also in uses of special alloys for special purposes, this article will have something that might be applied to your own lease.



External corrosion of the tubing here was due to hydrogen-sulphide, (H_2S), This deteriorating action, often called "Ring Worm Infection," increases production costs by down time and replacements. Corrosive resistant materials, fluid inhibitors and alloys delay such expense.

ventive measures, materially decreases the economic life of the wells and speeds abandonment. However, the problem is there in initial stages in many pools and in advanced stages in a few, and no matter what means is employed to combat the trouble, an increased production cost is a foregone conclusion.

Water Factors

In common with most of the productive strata of western Kansas, Mississippi chat and Siliceous lime contain large volumes of salt water. Production of this water and its disposal involves corrosive problems generally associated with handling of brines. Tests have shown the degree of salinity of Kansas brines from the same formation to be highly variable from field to field and from lease to lease. Varying of conditions within pools calls for frequent tests of waters being treated and often prohibits fixed or specific practices.

Analysis of Brine

Analysis of representative samples of brine accompanying production from Siliceous lime in Chase pool of Rice County showed the following averages:

	Parts per million
Sodium	8,200
Calcium	1,100
Magnesium	380
SO_4	1,000
C_1	16,000
HCO_3	480
Total	27,160

Brine for the tests was obtained from six wells, and all contained hydrogen-sulphide in varying amounts.

Silica Like Chase

Tests made in Silica pool proved the Siliceous to contain the same chemicals in approximately the same concentrations, excepting sulphates, which were in a reduced content. In the Burrton-Haury pool of northeast Reno County, analysis made of chat water showed total parts per million exceeding 150,000. Sodium and chlorine concentrations had been greatly increased, while the HCO_3 radical decreased. Hydrogen-sulphide was found to be present in varying amounts in all samples.

Deductions from the chemical analyses indicates the corrosive nature of the waters tested. This has been adequately proven through normal use of equipment. The formation of elementary sulphur, induced acidity by reaction, and the cathodic character of some of the resultant compounds prior to lifting of the brine to the surface, as well as after being produced, present a highly complex series of reactions that are only partially predictable.

Tubing and Rods First Attacked

Within the well the tubing and rods are the first pieces of equipment to be noticeably attacked,

the degree of damage increasing in proportion to the depletion of the pool from crude to water. Pumping equipment, in continually flushing the lowered parts by agitation of the fluid column, materially increases the speed of corrosion. Release of gas is another accelerating factor. In wells in which gas lift is being used the reactions are further speeded. If air or oxygen is admitted to production tubing through injection or repressuring, a new set of conditions arise that still effect an increase in corrosive action of brines.

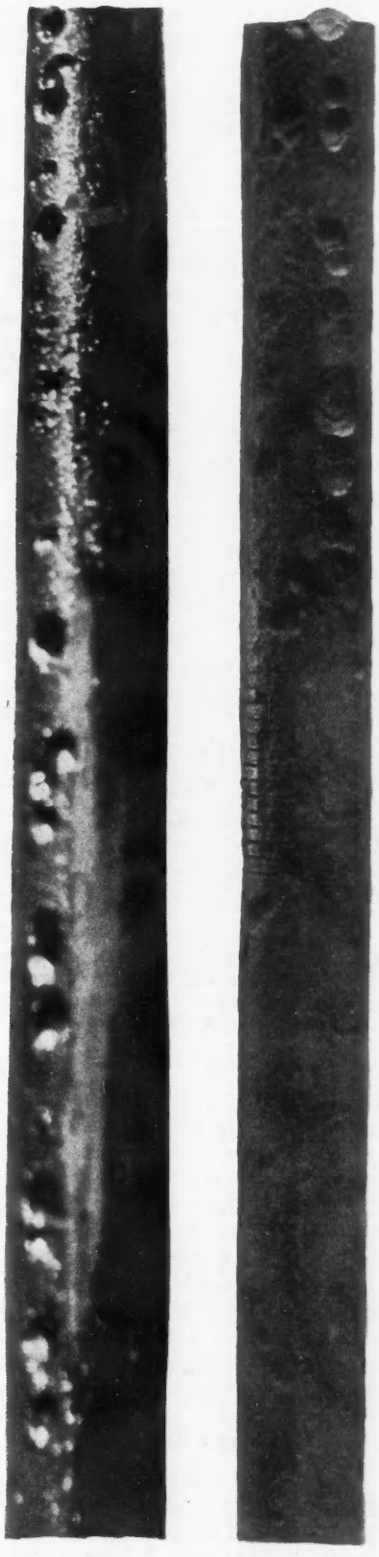
Effect on Cementing

Far more care is required of cementing jobs in some of the Kansas areas than in other sections, and difficulty has been experienced in obtaining a good set. This latter trouble has been eliminated by analysis of the particular stratigraphic conditions of some sections. Surface pipe in wells penetrating Dakota series of sandstones, found from 50 to 600 feet from the surface in widespread locations, is being cemented from bottom to top through general practice. This procedure adds to the cost of wells by making recovery of the surface string impossible. But at the same time it offers two advantages. As the Dakota series is frequently composed of laminated sand lenses carrying waters varying from fresh to salt, the cementing method prevents contamination of pure water sources. Also, due to the varying salt concentrations, exterior corrosion of the casing would be speeded by combined chemical displacement and by cathodic reaction resulting from the differences in the water contents.

In long strings of casing, a number have been cemented well toward the surface. External corrosion of casing has not been severe.

Hydrogen Sulphide and Corrosion

Hydrogen-sulphide (H_2S) is widely distributed throughout the Mississippi chat and Siliceous lime formations of Kansas. Percentages present are highly variable. Natural gas as well as the crude contains the sulphide, and although there are generally only minor volumes of gas in the Siliceous lime, the chat frequently carries high volumes and pressures. On initial test a wildcat well making gas from chat at a location northeast of Lyons, Rice County, Section 35-19s-8w, tested 134 grains of sulphur per 100 cubic feet of gas.



Left: Surface casing strings generally are cemented from bottom to top to prevent salt water brines from breaking into the well or contaminating fresh water strata near the surface. This piece of casing, removed from Peabody pool, shows external corrosion due to brines in shallow strata. Right: This piece of ⅞-inch sucker rod was removed from a well producing from Silecious lime in Chase pool. Corrosion and erosion are apparent, as is evidence of hydrogen embrittlement where the rod was broken to obtain the sample.

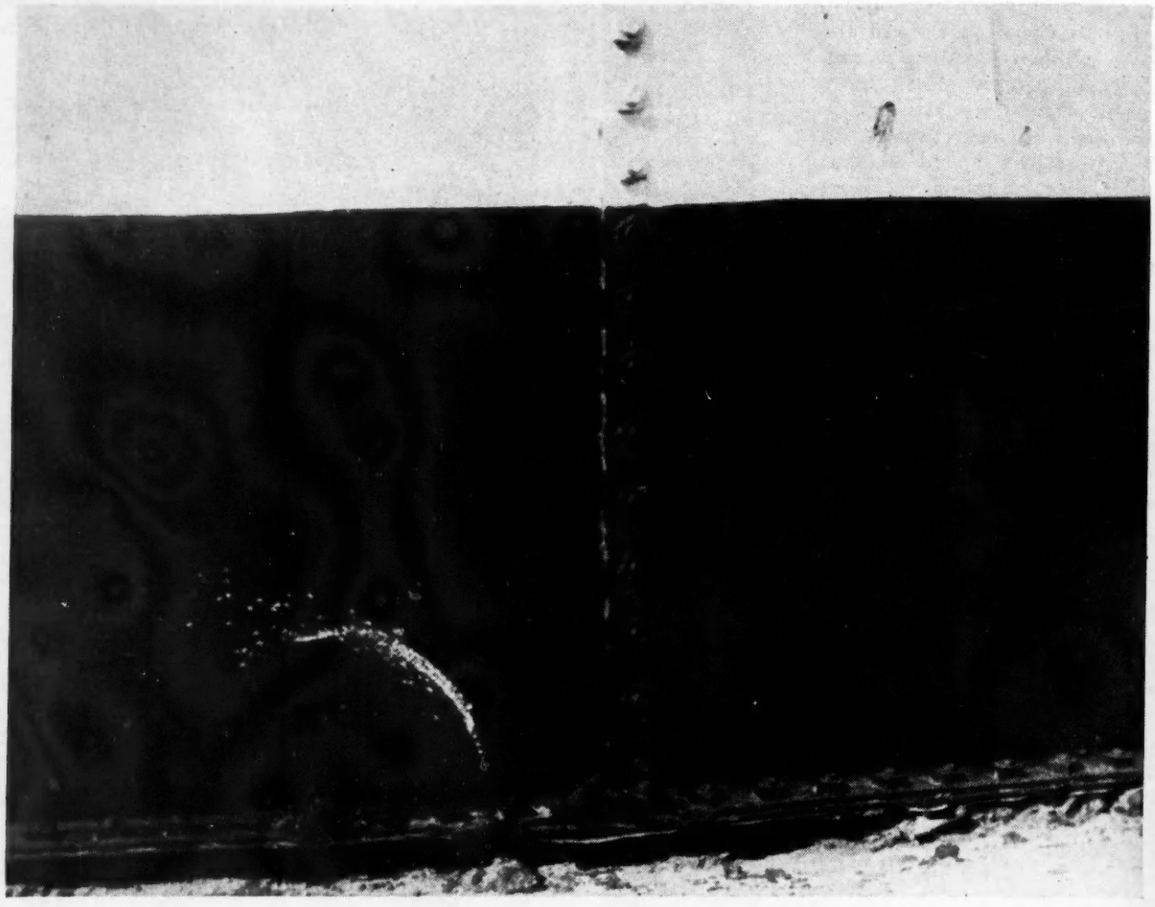
There are three ways in which hydrogen-sulphide action adds to production costs. The most apparent of these is the replacement of parts that have been eroded visibly by corrosive action. Also, by the embrittlement action, some equipment may have a short life. Another costly factor is the decreased efficiency of mechanical equipment impaired by the action of the sulphide.

Submerged Tubing Suffers

Within the well, the most serious corrosive action is between the bottom of the tubing and the top of the fluid column. Pump barrels, rods and tubing may show the effect of the action in 60 days, six months or a year and a half, depending upon the prevailing conditions. From the time of the first tubing failure, other failures generally occur in a more or less regular sequence until all of the tubing below the fluid level has been replaced. In some freak instances it seems that failures are about evenly distributed from the bottom of the hole to the surface, no matter where the top of the fluid might be, although generally the severity of the corrosive action decreases toward the head of the well. Increased production of formation water usually adds to the destructiveness of the action of H_2S.

Use of Special Tubing

To reduce to as low a point as possible the cost of the action of corrosion on tubing, two firms have standardized on wrought iron for wells in fields in which difficulty above the ordinary has been experienced. Other firms have installed split strings and a number of operators have not considered it economically desirable to change from standard equipment. Alloys are being tested in some wells. On one installation of black wrought iron replacing ten lengths of standard tubing that failed in 18 months under particularly severe conditions, no difficulty was experienced in the 18 months following the change. Examination of the tubing disclosed that although action was noted, a dangerous condition was not to be found. Galvanized wrought iron has proven of value in extreme cases and in one instance increased from 60 to



Although appearing in perfect condition on the outside, this tank is badly corroded within. Evidence of this is in the plug, to the lower left of the white mark left by the wrench, used to stop a leak. Life of a tank can be prolonged by setting bolts through enlarged pits resulting from either corrosion or electrolytic action, or both.

200 days the time expiring between installation of equipment and first tubing failure.

Rod Failures

Rod failure is an important item in the consideration of added expense through corrosion, and it is probable that many more failures could be attributed to corrosive action if all facts were known.

Corrosion fatigue and erosion of rods has become severe in a number of Kansas fields. Although rods may visibly pit, and in this manner show a point of weakness, many failures result through fatigue concentrating stress at a pit. Hydrogen embrittlement at the surface, and in lesser degrees to fractional depths, creates an invisible weakness.

Failure due to rod pitting is readily apparent when the additional load stress at the pitted point is calculated.

Assuming that corrosive conditions prevail at three average Kansas locations, in severity of concentration usual for the section, the following actual conditions were present, and are representative of the area. Pumping equipment was averaging 20 strokes per minute, being 54 inches in length. A 2¾-inch plunger was in service working from ⅞-inch rod through 3-inch tubing. Hole was bottomed at an average depth of 3200 feet in Siliceous lime.

Increases the Load

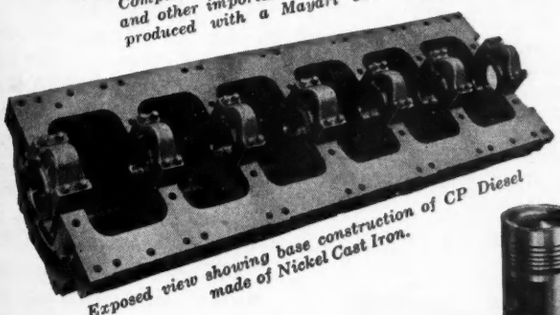
From these facts, the load being carried on the rod string, as determined at the polish rod, was 18,000 pounds, or 30,000 pounds per square inch using .6 square inch cross-sectional diameter of a ⅞-inch rod. At a point 2000 feet off bottom, or near the fluid level in the cases considered, the calculated actual load was 12,000 pounds, or about 20,000 pounds per square inch. Assuming that corrosion has advanced to a stage in which rod is pitted to various depths cutting, a localized diameter to only ⅝-inch, rather than the original ⅞-inch diameter of rod as installed, then the stress at this point is inversely proportional to the reduced area of the rod which is about .306 square inches, making the stress about 40,000 pounds per square inch. If the corrosion had reduced the diameter from the ⅞-inch measurement to about ¾ inches, the area of the section would have been reduced to about .442 square inches and this would have occasioned a stress of about 28,000 pounds per square inch.

In order to overcome weakening of rod in this manner, some firms have recently installed ⅞-inch or 1-inch rod, singly or in combination, to replace ¾-inch or smaller rods. Nickle alloy rod is gaining in favor among operators, and there are many installations of wrought iron equipment. Couplings have caused very little difficulty to date.

Pump barrels and related equipment have caused some trouble,

ONLY THE TOUGHEST IRON WOULD DO FOR THIS NEW CP DIESEL

Completely assembled Type 8 CP Diesel with base frame and other important castings made of Nickel Cast Iron produced with a Mayari base with Nickel additions.



Exposed view showing base construction of CP Diesel made of Nickel Cast Iron.

Pistons and liners are also made of Nickel Cast Iron.

Nickel Cast Iron frame for CP Diesel pictured above.

...SO THEY SELECTED ONE CONTAINING NICKEL

Just announced is this new Diesel engine by Chicago Pneumatic Tool Company of Franklin, Pa. A four-cycle, direct injection type, especially designed for medium speed and continuous duty.

Behind it are eighteen months of designing and testing, and it now goes to market for generator drives, power drives, compressor drives, ice plants, locomotives, shovels, and oil field drilling and pumping.

In designing this versatile Diesel, CP engineers decided it should be as tough and reliable as modern alloys could make it... equipped to withstand the high stresses and wear to which the present day Diesel is subjected.

Accordingly, Nickel Cast Iron was specified for numerous parts, including the engine base and frame, exhaust manifolds, pistons, cylinder heads and liners.

The superior toughness and strength of the Nickel Iron Castings selected for this job is demonstrated by the tests applied to 1¼" round bars with 12" centers. They showed a breaking load of 3700 to 4500 lbs. and a deflection of .13" to .16". Tensile strength showed a range between 35,000 to 45,000 p.s.i. Moreover these compositions machine readily, resist heat and wear and are easily produced.

We invite consultation on the use of the Nickel Cast Irons, Nickel Alloy Steels, and other alloys containing Nickel in your equipment.

CAST **NICKEL** IRON

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL ST., NEW YORK, N.Y.

and liners have been inserted in a number of instances to retard corrosion. The small volume of metal contained in this particular equipment makes it practical to use more expensive alloy material and fabrication than would be allowable in larger pieces of equipment.

Surface and General Factors

Surface equipment in Kansas fields is generally well protected externally, but the interior of lines and storage is always subject to corrosion. There are a few installations of crude lines having a protective interior coating, but these are usually reserved for brine disposal operations.

Storage tanks are a problem without satisfactory solution. One operating firm uses wood tanks exclusively. Two others have turned to wrought iron, and one firm is applying a spray to interiors after thorough sand-blasting. One operator is using tanks of wrought iron tops and bottoms, with steel side sheets. The trend is definitely toward further increase in protection, and the careful periodic checks being made upon equipment in service at this time will probably determine the selection of tankage in the future.

Brine Injures Tanks

In action, the salt brine normally produced settles to the bottom of stock and lease tanks and immediately starts a corrosive action. Natural gas released from the crude, and carrying various concentrations of hydrogen-sulphide, attacks the decks. This latter action is greatly accelerated by moisture in the gas and by air that is bound to enter tanks under certain conditions. Rust and scale from the top and side walls of the tank filter through the fluid and settle to the bottom. Here the oxides and sulphides, partially ionized in the bottoms, react to form new and more corrosive compounds with other chemicals produced with the fluid. One typical reaction which is likely to occur in most water-saturated accumulations under ionizing conditions is:

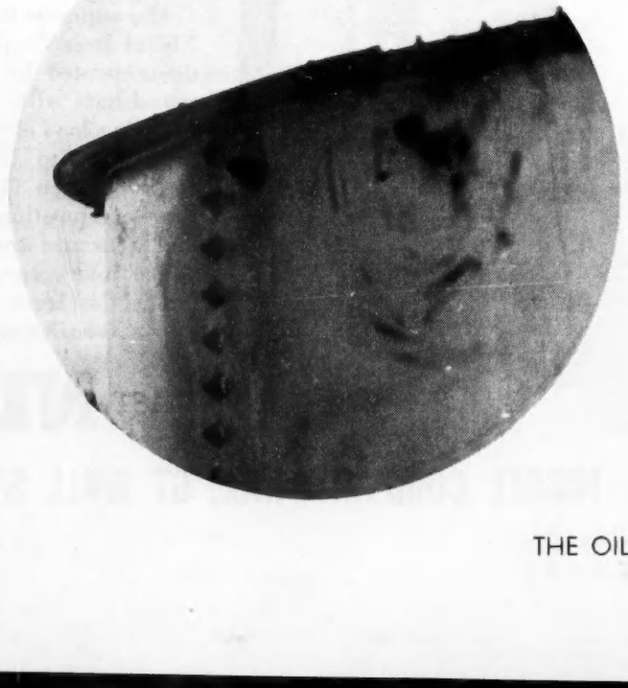
$$Cl_2 + H_2O \rightarrow\leftarrow HOCl + HCl$$

forming hydrochloric or muriatic acid solution. In addition to chemical reaction, the accumulation produces a noticable electrolytic reaction to speed disintegration of the tankage. Locations most quickly showing the effects of sour and corrosive crudes are just above the bottom and below the deck.

Gas With High H_2S Content

The handling of natural gas testing high in H_2S presents difficulties, and the corrosive action may quickly be noted within transmission lines. Action is more rapid in gas lines than in oil lines carrying sour crudes or upon production equipment. The reasons for this are probably molecular and may be attributed in part to greater energy and activity. Approximately eight grains of H_2S per 100 cubic feet of gas is about the danger line between non-corrosive and dangerous natural gas. This figure varies with air contained in the gas, water vapor, temperature and pressure; each of these being accelerators of the corrosive action of sour gas.

Entirely aside from the protection of equipment through the use of alloys, coating or non-corrosive materials, an operator has developed a chemical compound that has given exceptional results in a number of cases. The inhibitor to corrosion is caustic, mixed with colloidal chemicals, and is used as a fluid control. The compound is introduced into the well by injection outside the tubing.



Three bolts just under the deck stopping leaks temporarily. Action of corrosive crudes and gases is apparent first either just above the floor or under the deck sheets. Sidewalls gradually show an increasing number of danger zones.

Conditions Vary

Conditions everywhere in the state vary with strata and with sections of the individual fields. On one lease in Raymond pool six Siliceous lime producers have produced a like volume of crude over about the same length of time. Of these six wells two have caused operators to install non-corrosive materials, while the remaining four have given no trouble.

El Dorado pool in Butler County was the first major Kansas field to prove severely corrosive. Bad to begin with, the action of the crude became worse as the field was developed. New tubing in wells in the pool was replaced within 60 days. Particular instances of trouble are interesting for comparative purposes. One well in which regular tubing was installed averaged 1 1/5 failures per month, or 36 in a 42 month period. Thirty failures of tubing were reported from an El Dorado well between December 1, 1934, the date of installation, and February, 1937. The first failure occurred four months after installation.

Despite the fact that corrosion difficulties have not up to this time been of drastic importance to Kansas producers, engineers do not believe that present conditions will persist and are reluctant to make a guess as to just how bad corrosion problems may become in the future. The opinion has been expressed that difficulties in Siliceous and chat pools may become as bad as those encountered in the El Dorado field. Conditions in the latter are extreme. There is every reason to prepare for increasing difficulties arising from handling western Kansas crudes.

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THE UNIQUE PRINCIPLE OF ROLLING DOGS gives a gradual, cushioning grip. Positively will not cut, mar, or bottleneck the pipe. Insurance against many long-drawn-out, hazardous, and costly fishing jobs due to damaged pipe. POSITIVELY ELIMINATES THE GREATEST CAUSE OF DELAY IN HANDLING PIPE, namely, sticking in bowl. The dogs roll away from the pipe as it is pulled, assuring **instant release. Fast handling of pipe saves money.**

QUICK INSTALLATION ON THE DERRICK FLOOR of new dogs and other worn parts puts old slips on a par with new slips, in **efficient, economical performance.**

EASIER AND FASTER TO HANDLE. Saves crews and costly accidents.

USED PRACTICALLY 100% ON ALL WELLS DRILLED BELOW 8,000 FEET IN THE MID-CONTINENT AND GULF COAST FIELDS . . . BY FAR THE LARGEST SELLING SLIP THROUGHOUT THE WORLD.

New MISSION VALVELESS SWABS

TANDEM MODEL

SWABBING 3 to 15 TIMES FASTER . . . protecting the sand . . . profits from oil gotten into the tanks quicker WOULD INTEREST YOU, WOULDN'T IT?

THE MISSION VALVELESS SWAB **FALLS LIKE A PLUMMET** due to the **SPLIT-RUBBER PRINCIPLE.**

Half the rubber rises above and clear of the stationary half, allowing direct and unrestricted fluid passage.

SAFER: Gas pressure will open split-rubber, permitting gas to by-pass, resuming its load without loss after gas has passed. No loose line over derrick floor to endanger crew.

See MISSION Record - Making Products
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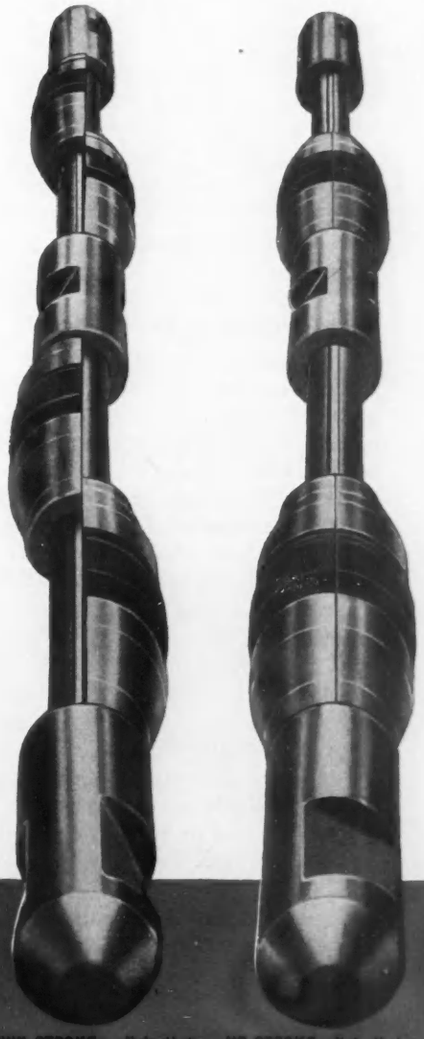

DOWN STROKE—Note that half of each rubber has raised above stationary half . . . allowing an area for fluid passage larger than the area of flow around the A.P.I. pin.

UP STROKE—Note that movable half of each rubber has dropped back beside its other half. Rubbers now in swabbing position.

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Wet Gas Measurement and Control Problems

By H. F. CHAPMAN
Phillips Petroleum Company

THE problems of wet gas measurement afford a great many problems that vary greatly in different fields. However, there are troubles common to all areas, and these account for most of the errors encountered in wet gas measurement.

These common troubles are as follows:

1. Improper installations.
2. Pulsating flows:
   a. Due to compressors.
   b. Due to liquid in line.
3. Oily or wet gas.
4. Leaks in meter and meter piping.
5. Surging or heading flows.
   a. Due to natural flowing condition of well.
   b. Due to intermittent gas lift.
   c. Due to defective regulators.
6. Deduction meters.
7. Sour gas.

Improper Installation

The most common form of this trouble is where an orifice flange is installed in the line, with no by pass or any means of getting to the orifice without shutting out all the gas being measured through the installation. My experience with such installations has been that when once in service, the expense and trouble to get the gas off, is so great, that the same orifice plate is usually left in until the differential is so low, that due to the error caused by temperature effect on the mercury, a large error is encountered.

Also with this type of installation, there is usually an accumulation of dirt, water and oil against the orifice plate which is not recommended for good measurement. Then, aside from the measurement standpoint, this is very impractical, as the cost of changing or inspecting the orifice plate only a few times will be greater than the original cost would have been in installing a standard meter setting.

Other common forms of improper installations are: too short meter runs, welds or connections too close to orifice flange, runs too close to relief valves or compressors, and lack of drips or scrubbers to scrub the liquid.

Pulsating Flows

These are a very common form of trouble and can account for large errors due to improper action of the meter as well as making it almost impossible to get a satisfactory chart.

a. *Pulsation due to compressors* is very common and is responsible for greater error than that caused by liquids, sometimes being as much as 20 or 25 percent. Where this condition exists it is very hard to detect an error or the extent of error. However, they can usually be detected by using as little restriction as possible in the meter piping and by taking out the check valves from the meter, which will cause the meter to partly correct itself. This trouble can be corrected by moving the meter far enough from the station, or by putting in enough capacity to take care of the pulsation. This may be determined by tapping the line and connecting a U Tube to find a point where there is no great amount of pulsation.

b. *Pulsations Due to Liquid.* Where there is a bad liquid pulsation, it is impossible to get a very accurate reading on a 24-hour chart, as the flow will check for a short time and then surge through often enough to connect the lines, and as there is no way of telling from the chart anything about the time interval at the high or low flows it is impossible to tell which part of the line is representative of the actual flow. To correct this condition is as a rule only a problem of getting enough drips or scrubbers properly placed to scrub out the liquid.

Oily or Wet Gas

This can cause a large amount of trouble due to an oil and dirt accumulation in the mercury chamber, and by causing an emulsification of the mercury. However, as a rule, frequent checking and cleansing of the meter will take care of this condition, except in flush fields where the separators or flow tanks are overloaded to the extent that there is a large amount of oil carrying over at all times with the gas. We have had some conditions where it was impossible to turn the meter into service without picking up oil. We helped this condition to a great extent by using small charcoal scrubbers in the meter piping.

Leaks in Meters and Meter Piping

Leaks in meters and meter piping may cause false differentials and in turn amount to large errors if allowed to exist, as well as causing a flow through the meter piping which will help to carry liquid and dirt into the meter. As a rule leaks can easily be detected by closing the two valves off the flange while the meter is in service, if there is a change in the differential either raising it or lowering it this denotes a

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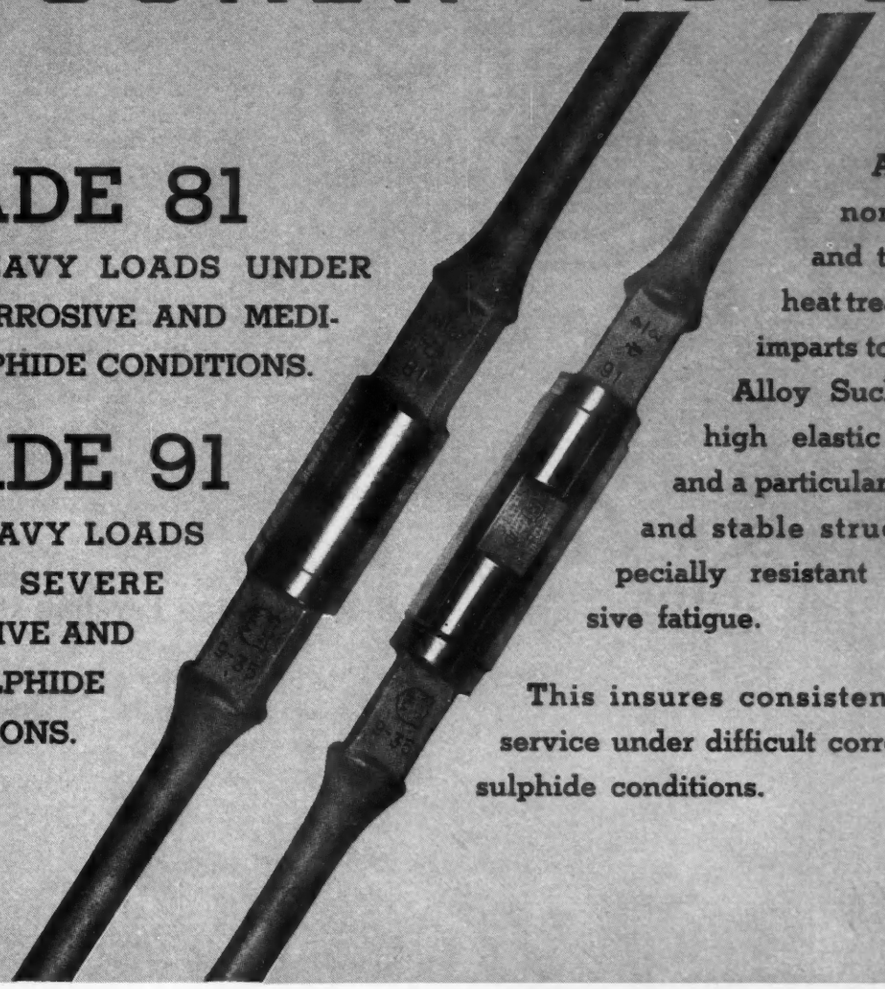
Presented before the Southwestern Gas Measurement Short Course, The University of Oklahoma, Norman, Oklahoma.

NATIONAL ALLOY SUCKER RODS



GRADE 81

FOR HEAVY LOADS UNDER BAD CORROSIVE AND MEDIUM SULPHIDE CONDITIONS.

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FOR HEAVY LOADS UNDER SEVERE CORROSIVE AND BAD SULPHIDE CONDITIONS.

A special normalizing and tempering heat treat process imparts to National Alloy Sucker Rods high elastic strength and a particularly ductile and stable structure especially resistant to corrosive fatigue.

This insures consistently good service under difficult corrosive and sulphide conditions.

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leak and on which side of the meter the leak is.

Surging or Heading Flows

This type of flow makes it very difficult to keep ink in the pens and also makes a chart which I believe cannot be read with any high degree of accuracy.

If due to natural flowing condition of well, or to intermittent gas lift, I do not know of anything that can be done about it. But often a regulator on the line will be tight and inclined to stick thus causing a similar looking chart while the cause may be easily remedied.

Deduction Meters

This is where the gas from a certain lease is metered first through a meter on the lease and then to save laying additional lines is put through the lines of an adjoining lease and metered again, together with the gas from that lease, then to arrive at the volume from the first lease it is necessary to deduct the reading from the first meter from that of the meter measuring the gas of both leases. This doesn't seem to be as common now as in the past, but it has been my experience that where this condition existed, at some time or other it resulted in the gas being accounted for twice. Even if this does not happen, any error in the one meter reflects on the other, which makes it very unsatisfactory.

Sour Gas

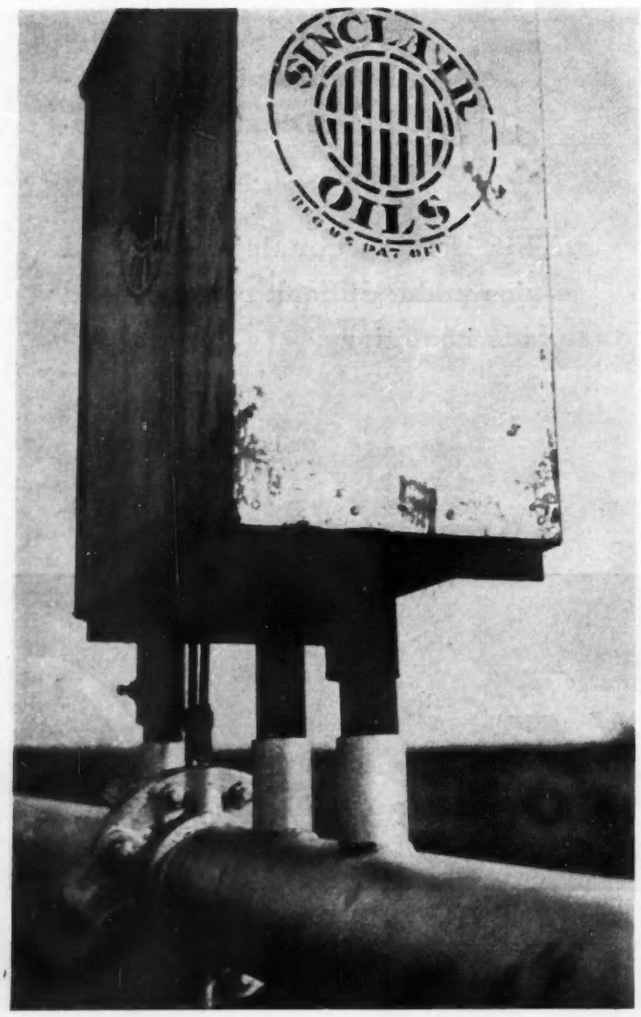
This gas is subject to all the unfavorable conditions of sweet gas along with the bad corrosive action of sour gas, which causes a tightening of all bearings, has a deteriorating effect on the meter and an accumulation in the mercury chamber and other parts of the meter. There has been quite a lot of improvement of this trouble by the selection of proper metals, treating, etc. but still the measurement of sour gas requires frequent checking and cleaning of meters, if a reasonable high degree of accuracy is to be attained.

Wet Gas Control

This is usually only to the extent of controlling the pressure on the wells or leases, regulating for taking the vapors from stock or storage tanks at atmospheric pressure, and controllers for making the division of the gas to different plants or booster stations.

The first two are usually either lever or spring type regulators, which require all the bearings and moving parts to be kept smooth and working free, the diaphragms must be in good condition and if dash pot types are used, the oil should not be allowed to get thick or congealed so as to cause sticking, and the valves should be kept ground to assure a positive shut off.

The latter is usually an air operated differential controller which operates a diaphragm motor. This type of instrument is very satisfactory if properly installed, and gives very lit tle trouble if they have a clean, well scrubbed air supply. However, as all the openings and air passages are very small, any small amount of dirt and liquid will plug them or will hamper the small working parts. The care of the valves for this type of installation is very similar to that of the first two.

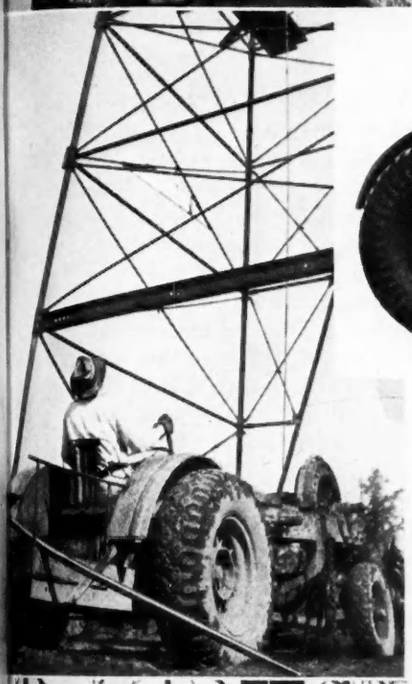


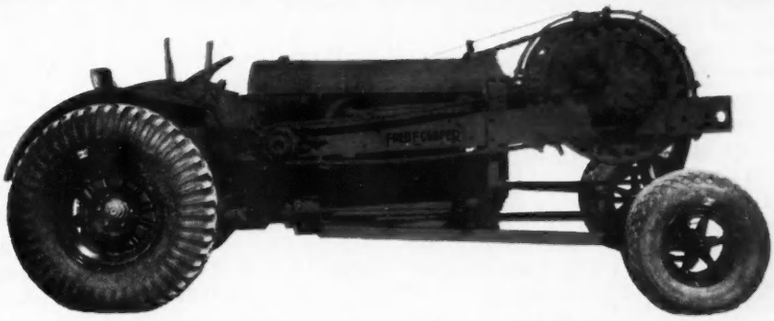
Meter Housing Leveling Device

When it is necessary to place a meter on a hillside, it is sometimes difficult to level the housing so that it will be in proper vertical and horizontal relationship to the instrument it is to protect. Sinclair Prairie Oil Company uses a simple but effective means of leveling its meter houses located where such conditions apply.

As the recorder is placed upon the usual two-inch pipe standard, secured to the loop by screwing into a collar welded to the pipe line, two extra collars are welded to the line. One of the extra collars is located up stream and the other down stream from the meter flange. They are placed at the proper distance apart to accommodate the meter house legs. Short pieces of two-inch pipe are then screwed into these collars, while short nipples of 2½-inch pipe are welded to the angle iron base of the house. When completed, nuts are welded to the side of the larger pipe, through which set screws are placed. The 2½-inch pipe is slipped over the short nipples on the two-inch lines, and the set screws adjusted at the proper position.

ALLIS-CHALMERS
Well Servicing Equipment





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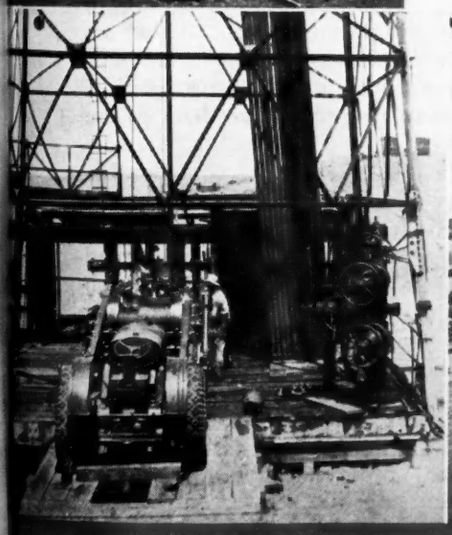
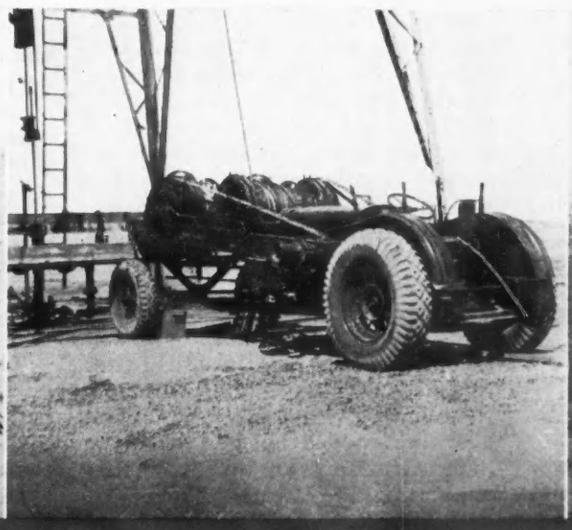
A plain statement of facts—"A-C winch tractors are High Speed, they are faster on the road (15 or 30 m.p.h.). They will do a tubing or rod job in less time, with greater safety—men just naturally do better work with a machine they have confidence in." All units are equipped with Cooper special designed air cooled brakes.





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Los Angeles

ELIMINATING ONE PROBLEM OF

Pumping Heavy Oils

BY USING A SPECIAL HOOK-UP

By C. C. HERMANN

TALCO is presenting difficulties to operators there in the matter of moving the oil to market. Gathering systems and lines out of the field have been put down, only to demonstrate the necessity later on of equipment and methods of line transportation not called for in conventional situations.

In the accompanying article, C. C. Herman gives specific problems and specific solutions with reference to moving heavy oil in all seasons. The article is not technical, but it does have a specific practical application to those areas coping with the problem of disposing of higher viscosity crudes.

HEAVY OIL, such as transmission oil comparable to 600 W, gives considerable trouble when trying to pump it from one place to another. This is especially true on cold mornings during the spring and fall and during the winter months.

Heating Needed

To move this oil by pumping necessitates, first of all, that the reservoir be provided with heating coils for the condensation of steam. The temperature of the oil must be around 90° F. to handle it in quantity. However, it can be moved at a temperature as low as 60°F. provided the pump is in good condition and all air has been removed from the line.

Quite recently some trouble was encountered with a pump on this material. The pump used was a gear type, 2-inch suction and discharge, direct connected through a set of gears to a 7½ H.P. 1200 RPM. 3 phase, 60 cycle, 440 volt electric motor. The pump operated at 250 RPM. at which speed it should deliver 60 gallons per minute at a pressure of 75 pounds per square inch gauge. With the oil temperature at 70°F. this performance was very well maintained. However, the storage tank was allowed to empty due to a delayed shipment of oil. The oil car finally arrived and was steamed to a temperature of about 70°F. before dumping into the underground storage tank and the pump started. Oil failed to come from the pump and the immediate problem was critical.

The Solution

The first thing done by the plumber on the job was to break the suction line at the union to see if oil was flowing to the pump. He found that the oil just barely flowed through the pipe. His decision was that the oil was too cold and that the only thing to do was to sit by until the tank coil warmed the oil to a point where it would flow with increased velocity. Obviously this was the path of least resistance, but not at all the answer to the question of what was wrong with the oil system. Oil was needed urgently, so much so that it was unwise to wait for the steam lines to do their stuff.

The engineer saw greater possibilities when he got on the job, and the first thing he did was to break the discharge pipe line just above the pump by opening the union. The line opened up, and with the pump running nothing further happened; no oil came. Then, just as everyone was thinking about something else to do, the pump labored. The next instant a large stream of oil belched from the open end of the pipe. Naturally, the pump was closed down right away, the pipe connection replaced, and the pump started again. Oil flowed in a large stream and continued to flow the rest of the day.

What Was Wrong?

Now just what was wrong with with the outfit? Quite obviously the pump was air bound. There was sufficient slip in the pump to allow the gears to revolve without throwing out the air, and this condition was aggravated because the oil was cold or just lukewarm. As soon, however, as the pipe line was opened on the discharge side of the pump this entrapped air was liberated and oil just had to follow.

Pet Cock Needed On Discharge

This leads us to one definite conclusion which was sadly overlooked by this particular plumber. The pump should have been supplied with a pet cock on the discharge pipe just beyond the pump or on the pump housing so that air could be released. But there was no pet cock on the pump or pipe, so that the pipe line had to be opened, and that was a troublesome job. It caused a considerable delay too, for if there had been a pet cock on the pump the workmen would have probably opened it shortly after going on the job and oil would have come almost immediately.

There are one or two other important things which should not be overlooked when piping this kind of liquid. Figure 1 shows a typical pipe diagram for such a system. In the figure "a" is the storage tank with the copper heat-

Absolutely Leak-Proof

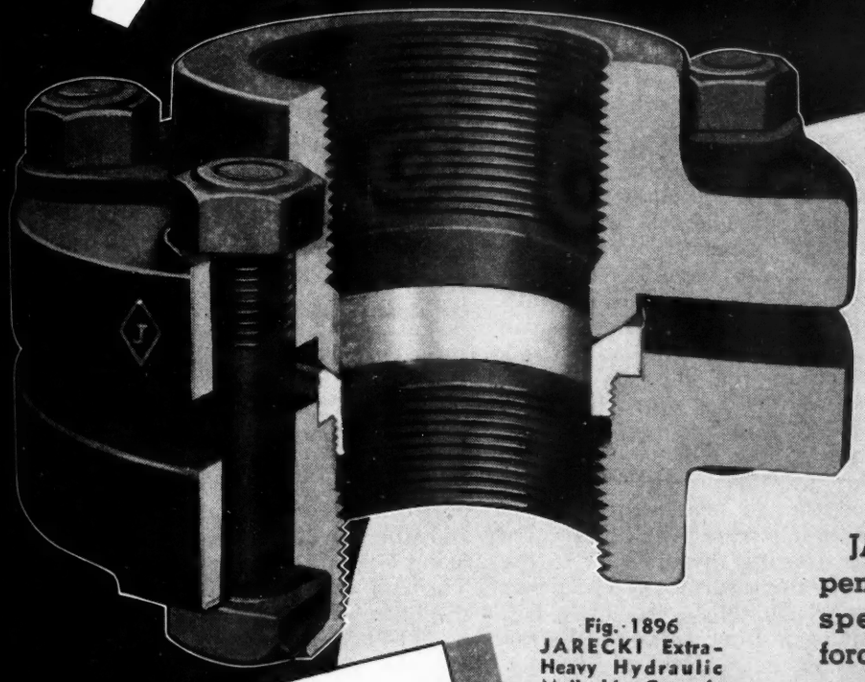

Fig. 1896
JARECKI Extra-Heavy Hydraulic Malleable Ground-Joint Union.

GROUND-JOINT UNIONS

JARECKI Ground-Joint Unions can be depended on to be absolutely leak-proof. By a special process, the brass seat-rings are forced into place under great pressure, becoming practically one piece with the iron. Seats are accurately fitted, insuring an absolutely tight ball joint. This joint will fit perfectly even though the pipes are not in exact alignment.

JARECKI Unions are amply proportioned to give extra strength where it is needed, and are characterized by strictly accurate dimensions and fine finish throughout.

JARECKI manufactures a complete line of Cast Iron, Malleable and Bronze Unions, in both ground-joint and gasket types, for steam working pressures from 100 to 300 pounds, and oil, water or gas non-shock pressures from 175 to 1500 pounds.

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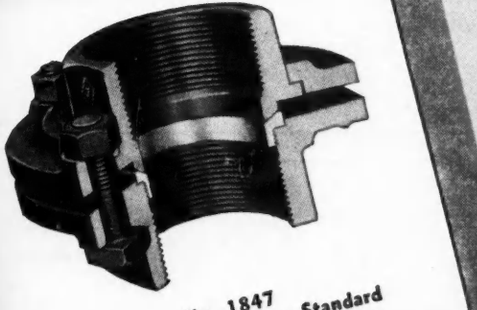

Fig. 1847
JARECKI Three-Piece Standard Malleable Ground-Joint Union.

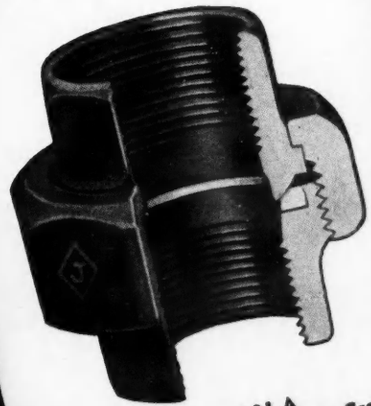

Fig. 101-A
JARECKI Heavy Malleable Ground-Joint Union.

See JARECKI Section, 1937 Composite Catalog

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ing coil "b" connected to a source of steam supply at "c" and the condensate trapped to the vacuum return line at "d". The oil pump is shown at "e," with its motive power at "f". The pump suction line is taken out of the bottom of the tank at "g" and the pump discharge is at "h" to the recirculating pipe line "i", with a discharge point at "j". A relief valve "k" is inserted in the recirculating line near the discharge point "j" so as to provide a differential pressure between the outgoing pipe line "i" and the return line "l", the latter being connected into the top of the tank at "m."

By-Pass Provided

A by-pass is provided at the pump being connected in the discharge line at "n", provided with a relief valve at "o" and connecting into the pump suction line at "p". This by-pass can also be connected back into the tank and for some liquids it is advisable to connect it into the tank rather than in the suction line of the pump. In case all valves out in the line are closed and something happens to the automatic relief valve at "k", for instance, if someone screws down the adjusting screw tightly so that no oil can pass through regardless of the pressure, circulation would not be stopped, but would continue through the pump by-pass. Obviously this oil would be pumped round and round and would gradually generate some heat. With some liquids this quantity might even be vaporized, and in that event the by-pass should terminate in the tank instead of in the suction of the pump. With heavy oil, however, such trouble is not apt to be encountered.

Placing Relief Valve

By the use of recirculating piping, such as described, warm oil is pumped through the pipes continually and the cooler oil returned to the tank for reheating. Such recirculating lines should run right close up to the discharge points. As many such discharge points can be inserted in the line as desired, and within the capacity of the pump to deliver, but the relief valve "k" must be placed at the remotest point of the system. When the discharge points are closed the oil pressure builds up to the point where the relief valve opens, passing the oil back to the tank via the return line. The pump capacity should be such as will maintain a flow through the return line, even with all the discharge points open. This is necessary in order that the oil in the return line may be kept flowing and not lose its heat to the point where flow would cease. Failures in oil supply are rare with a system of this design.

Insulation Needed

Recirculating oil lines should be covered to retain heat. Bare pipes will radiate the heat of the oil quite rapidly, and in long lines the drop in temperature may be sufficient to cause failure of the system. Ells, valves and other pipe fittings should be covered as well as the pipe. One and one-half inch air-cell covering will be sufficient for this work.

Copper Tank Coil

The tank coil should be of copper, one inch diameter, and of sufficient capacity to heat at least three times the amount of oil used per hour. This will keep hot oil in the recirculating line. Copper coils should be designed on the basis of 600 Btu transmission per square foot per hour per degree difference between the liquid within the tank and the steam in the coil when using 5-pound gage exhaust steam. The coil should not be placed on the bottom of the tank, as then it would become fouled with sludge in a short time and interfere when cleaning the tank. The pitch of the coils should be liberal and the slope toward the condensate discharge.

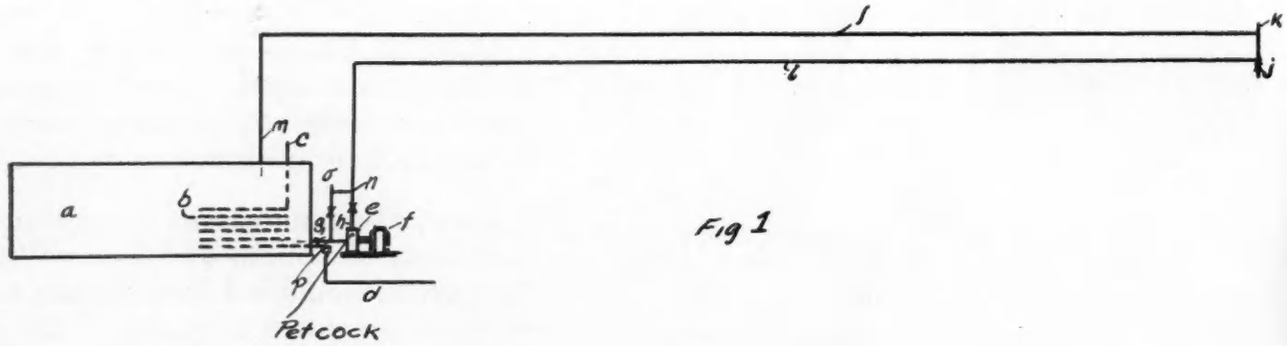

Fig 1

The author's idea of the type of arrangement that should be used to handle heavy oil of the type of 600W transmission oil at all seasons of the year. Explanation of the layout is contained in the text of his article.

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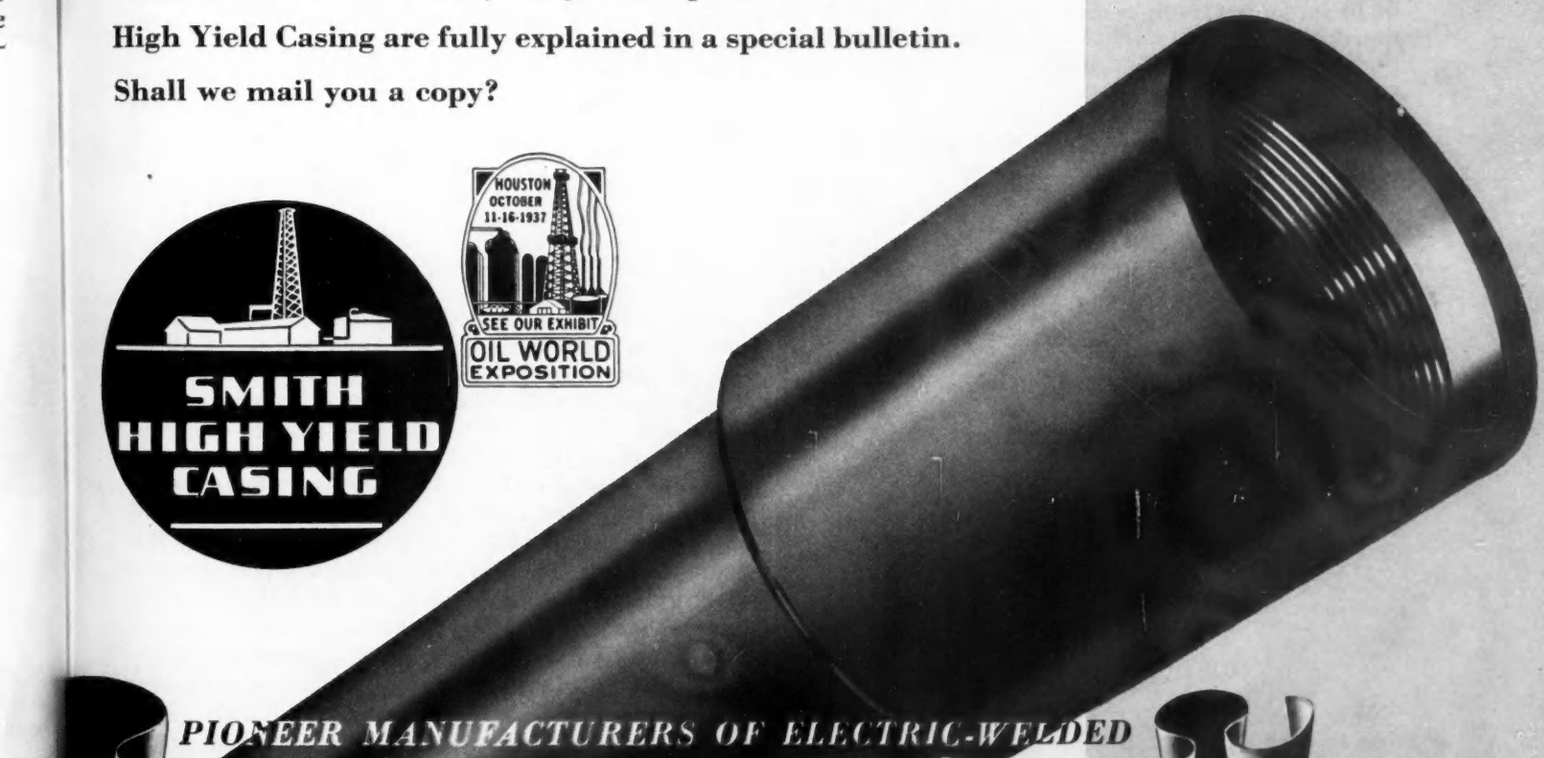

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Metallurgical Progress

IN DRILLING, PRODUCTION AND PIPE LINE

Equipment

By RUDOLPH SEIDEN
Consulting Engineer, Kansas City, Missuori

TODAY many hundreds of metals and alloys are used in the manufacture of oil and refining plant equipment. Although they lend themselves very efficiently to production of equipment in these fields, there is still a great need for metals and alloys that can provide a higher degree of tensile strength, resistance to corrosion, etc. As a matter of fact, there will never be an alloy or metal that can be used universally. Metallurgists realize that their goal for the future is to find the alloys best suited for a specific need.

Use of tungsten, molybdenum, tantalum, vanadium, and beryllium in alloys is indispensable today. A few years ago these metals were too high in price for common use. This was due largely to the difficulty smelters had in removing them from their ores; many of the metals have unusual heat-resisting properties.

Many Experiments Necessary

In metallurgy it is necessary to make innumerable experiments and analyses in order to find the best composition of an alloy for a specific need. Often, the use of one hundredth to one tenth of one percent of these new metals is enough to give an alloy the properties wanted.

It is my opinion that the task of the metallurgists could be greatly lightened if they had the cooperation of the oil field and refinery users. A certain amount of pioneering should be done in using equipment made from newly invented alloys. Undoubtedly this would be more expensive than the continued use of their present materials. With the aid of the practical oil men, it would be easier to find out how the alloys should be altered to give the highest degree of efficiency. There are great possibilities in the alloy field.

What Europe Has Done

We have many thousands of new patents, but due to lack of space in this paper it will only be possible to discuss the metallurgical progress which is already found to be practical for the oil industry or which perhaps will be of interest in the manufacture of equipment in the near future. Especially, I want to bring out the European progress of the years 1935-1937, assuming that the readers are more interested in it than in the here well-known American progress.

Iron and Steel

The welding process is more efficient than riveting because it reduces the effect of corrosive fluids and gases. Other protections against rust also are growing in usage, as galvanization, covering with chromium, aluminum, copper, nickel, etc.

Steels, containing copper can be made more resistant to the influence of weather and corrosive agents if they receive a small amount of phosphorous, .06—.2 percent.[1] And the danger of corrosion of cast iron (containing pearlite, martensite, and austenite) can be reduced, when it is alloyed with less than 1.78 percent antimony and with 1.8—14.9 percent nickel.[2] Finally, pipes made of wrought iron, become resistant to corrosion when their surface gets a layer of iron silicide; this will be developed through the influence of vapors of silicon tetrachloride upon the incandescent pipes.[3]

Tenacity A Problem

Often the tenacity of iron and steels is not satisfactory. We still have far to go before we shall be able to obtain the maximum tenacity in the industrially used metals. The tenacity of common steel, for instance, reaches only 10 percent of the theoretically attainable amount. The so-called low-alloy high-tensile corrosion-resistant steels have only twice the yield strength of that of ordinary steel (with the same carbon content). And it may be noted in this connection that most of the mechanical properties of steel used for machine parts, can be bettered if the metal is smelted and cast in vacuum.

A new ingot steel alloy for pipes, tubes and steam boilers has been patented, which contains .2 percent carbon and .1—.7 percent tungsten.[4] Another patented steel alloy with a tenacity higher than 9 in the Erichsen scale, has less than .12 percent carbon, 8—12 percent manganese, and 17—21 percent chromium.[5] And for high-valued drilling equipment and pipes is a steel developed with .1—.4 percent carbon, .7—1.5 percent silicon, .9—2.0 percent manganese,

.2—1.0 percent chromium, .7—2.0 percent copper, and .1—.5 percent aluminum.[6]

To harden cast iron (through conversion of its ferrite to martensite) it has to be treated with acetylene-oxygen flame. Then the hardness can reach 700 Brinell units.[7] The hardness of gray iron casting and its capability of resisting pressure, breaking, and bending can be increased if copper and manganese are present.[8] Concerning steel, the alloying of about 5 percent nickel and 2.6 percent aluminum doubles its hardness after annealing to 560° C., if the original steel had .3 percent carbon, .16 percent manganese, and a trace of silicon.[9]

Types for Specific Uses

An alloy for seamless pipes and tubes of very high tenacity which will be stable on heating to 1200° C., contains less than .2 percent carbon, 2.5—4 percent aluminum, and 16—20 percent chromium.[10] The best mechanical properties show a cast steel with nickel chromium, and molybdenum, produced in small converters, if the steel is annealed at 870° C., then quenched and again annealed at 500-670° C. Such steel has a tensile strength of 105 kg to the mm^2 and a Brinell hardness of 280. It is suitable for greatly used parts of machines.[11] A low-alloy steel of very high tenacity, however, which possesses a low fatigue and a high resistance to shocks against welded seams, also after aging, is composed as follows: less than .1 percent carbon, .5 percent manganese, .15 percent silicon, 1 percent copper, .5 percent nickel, and .12 percent phosphorous.[12]. At last, we have to name here a cast iron with much higher mechanical properties and with a very low silicon content (of .02—.06 percent), which can be produced through mixture of 1 percent of a silicon-calcium alloy (with 75 percent silicon) to the melting in the presence of sodium carbonate.[13] In the future, more and more high-tensile corrosion-resistant steels will be used for oil field and refining plant equipment, especially such steels which contain copper, chromium, nickel, silicon, and phosphorous. But beryllium, aluminum and other metals also will become more important every day.

Aluminum

One of the newer industrial metals is aluminum. It has a light weight and physical properties which are often of high value. These properties can be improved through alloying of small percentages of copper, silicon, manganese, magnesium, etc. Practically, aluminum can be named a corrosion-resistant metal. This resistance, however, can be raised through producing of an oxide-coating in an electrical process, or through nickeling (.02—.03 percent thick) or through chromium-plating.[14]

An improvement of the properties of an aluminum alloyed with silicon results by addition of less than .2 percent alkaline metals and then .1 percent magnesium.[15]

It is interesting that we can use aluminum sheets (.05-.1 mm thick) instead of lead as a packing material in the socket joints of iron pipes.[16]

Another new patent allows to produce coatings and linings of aluminum or aluminum alloys for metallic objects which must be dipped into a solution of sodium aluminum fluoride and alkali chlorides (excepting $CaCl_2$). Then, the metal has to be put into melted aluminum.[17] A similar process to produce aluminum coatings uses also a solution of chlorides and then dipping into melted aluminum, but the baths are here hermetically sealed and placed in a furnace with reducing gases. The plating is very compact and thin and can be electrically oxidized.[18]

Copper

Today, there are in industrial usage over 2000 alloys of copper, containing zinc, tin, aluminum, nickel, iron, silicon, phosphorous, and other elements. These alloys have mostly better physical properties than pure copper.

A new alloy for strongly used bearings contains .7—5.0 percent silicon, 2—7.5 percent lead, and 60—80 percent copper; the rest is zinc and eventually 5 percent tin. Another sort of brass for bearing parts of machines with high revolution and vibration get an addition of less than 15 percent zirconium. This alloy possesses also a high resistance to friction.[19] Finally, a ductile alloy is obtained when about 2 percent beryllium is added to copper. Its tensile strength increases nearly three times, to over 170,000 pounds to the square inch. Its resistance to fatigue is nearly the same as for good steel alloys. This and its resistance to corrosion and shock, its hardness and resilience make it advantageous to use for bearings.[20]

Nickel

Like aluminum, nickel is one of the newer industrial metals. Its chemical resistance and its high physical properties give it a preferred position among the metals. The pure metal and especially its steel and its non-ferrous alloys are very important and have still a great future for equipment, for example Monel metal (with about 67 percent nickel, 28 percent copper and 5 percent other elements).

High is the tensile strength of a nickel alloy with 20 percent chromium; it is 120,000 pounds to the square inch at room temperature, and 10 percent of this amount at 1800° F. Similar are the properties of other nickel-chromium alloys with varying quantities of molybdenum, tungsten, iron, and copper.

Lead

Soft and malleable is lead; it has no strength and no resistance to shock, but it is very acid-resistant. The physical properties can be improved, if lead is alloyed with other metals, for instance with 3—10 percent antimony to so-called hard-lead (or Regulus metal).

At the present time, lead-lined pipes, tanks and other equipment are used in special cases; the lead lining is from one eighth to one quarter of one inch thick.

The hardness and resistance to pressure of lead increases if arsenic is added, but not as much as when antimony or tin is included in the metal.[21] And the mechanical strength can be improved through heat treatment or alloying with .1 percent of a silver-cadmium alloy[22] of the formula $AgCd_4$.

Tin and Zinc

Both metals are used for covering and plating of corrodible metals, especially iron. The alloys of both, produced with copper or nickel, are very well known and often used (bronze, brass, etc.).

Rust prevention of iron and other corroding metals

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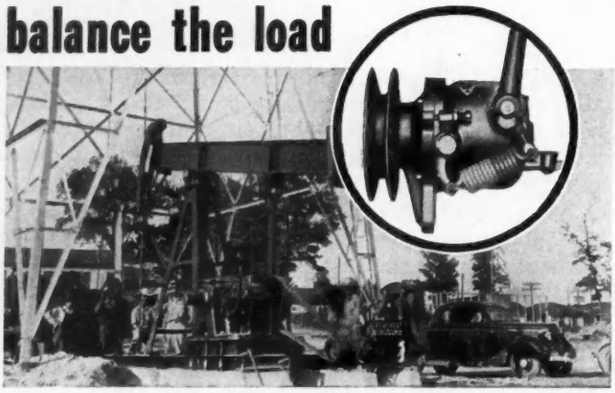

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can be obtained with the help of a coating-alloy containing 83 percent cadmium and 17 percent zinc. This alloy is harder than either of the metals, more stable than tin lining and cheaper than cadmium. The plating is very compact, uniform, even and unchangeable in air. The objects have to be dipped in the melting alloy at 350° C., or the alloy can be sprayed.[23]

Tungsten, Titanium and Tantalum

These three metals are very corrosion-resistant and of increasing importance. Also tungsten carbide is more in use every day. Such an alloy is now produced from less than 25 percent finely powdered iron, nickel or cobalt, 3—7 percent carbon, less than 40 percent titanium carbide, and the rest tungsten carbide. The mixture has to be pressed and sintered. This alloy is exceedingly hard and can be used for manufacture of tools, etc.[24]

Another interesting alloy of the same kind is obtained through sintering of tungsten with 2—9 percent beryllium and less than 45 percent chromium, eventually in presence of iron, nickel, cobalt or manganese.[25]

Artificial Resins

New ideas concern the usage of "vibrating metal" (German: Schwing-metall); i.e., a rubber composition for noiseless and not vibrating bedding of machines and motors, coupling of links and pipes, etc.

Also the galvanization of artificial resins and plastic masses has a great future, because they look like metals and have their properties, but they are much lighter in weight and often much cheaper in price. Especially in Germany is the use of such artificial materials with nickel, chromium or silver surface for apparatus and machine parts much increasing. But all these materials are not metals and alloys as we had to consider in this paper; we named them only, because they may be important in the future for equipment.

If the petroleum engineer or the producer of oil field and refinery plant equipment is able to glean a helpful idea from this review of the progress of metallurgy in the past two years, the purpose of this article will be attained and its writer will be satisfied.

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MEN IN THE INDUSTRY'S NEWS

E. G. GAYLORD, Standard Oil Company of California, San Francisco, has been named chairman of the American Petroleum Institute's recently appointed advisory committee on research project No. 27, a study of "The Functioning of Water in the Production of Oil From Reservoirs." Other members of the committee include: K. C. Heald, Gulf Oil Corporation, Pittsburgh; C. V. Milliken, Amerada Petroleum Corporation, Tulsa; T. V. Moore, Humble Oil & Refining Company, Houston; K. T. Nowels, Forest Development Corporation, Abilene, Texas; R. B. Roark, Shell Petroleum Corporation, Tulsa; A. C. Rubel, Union Oil Company of California, Los Angeles; W. C. Shutts, Standard Oil Development Company, New York; and F. E. Wood, Standard Oil Company of Indiana, Chicago.

Dr. F. E. Bartell, department of chemistry, University of Michigan, will be in charge of the work and will soon make a survey of the Bradford oil field. He will be aided by Frank C. Benner and Wesley W. Riches, research assistants.

PROF. EDWARD V. O'ROURKE, department of mine engineering of the School of Mineral Industries, Ohio State University, has returned to Columbus from Oklahoma City, where he was employed during the summer in the production department of Phillips Petroleum Company.

LEE R. COWLES was recently made a new assistant traffic manager of Standard Oil Company of Indiana. He is a member of the Missouri Bar Association and a practitioner before the Interstate Commerce Commission.

TOM PALMER, Wichita, Kansas, operator, flew to Mattoon, Illinois, for a conference with operators in the Illinois Coal Basin area last week following an inspection of his properties in Texas.

TOM C. IGOE, Shreveport, of the firm of Julian-Igoe, geologists, was in Flora, Illinois, last week making preparations for a survey his firm will make of several blocks in Clay, Cole, Shelby and Cumberland counties.

ROBERT M. PAYNE, head of the land department of Carter Oil Company for Illinois with offices in Mattoon, told delegates to the American Business Clubs' district convention in that city last week that the search for oil in Illinois will reach "much greater proportions" as soon as oil companies "are able to reach agreements with a few land owners who thus far have not leased their land."

GORDON ALGER, oil field worker of Turner Valley, Alberta, Canada, suffered a severe gash on his left cheek and possible eye injuries when a valve he was adjusting on a pressure line blew off the pipe and struck him in the face.

CHARLES C. MILLER, Belle Fourche, South Dakota, and Casper, Wyoming, drilling contractor, visited scenes of his early operations in Venango County, Pennsylvania, last week. Miller's grandfather, "Doc" Haggerty, was one of the first victims of a nitroglycerin explosion in the pioneer days of the oil industry.

PETER P. GREGORY, chairman of the Yates Pool Engineering Committee, has been given permission by the Yates Advisory Committee to engage in consulting work, in addition to his regular duties as chairman.

Gregory has a very interesting background, having been born in Siberia, Russia. He obtained his primary and secondary education in Russia, but retreated to China at the conclusion of the civil war in Russia in 1920. He was telegraph operator for Chinese Eastern Railroad from 1920 to 1921. He immigrated to Japan in 1921, and attended the American School in Japan from 1921 to 1923.

PETER K. GREGORY
. . . will do consulting

Gregory entered the University of California in 1923, and following a course in the College of Mining, graduated from that school as petroleum engineer in 1929. He worked for various oil companies during pursuit of his college work.

Prior to his work with the Yates Pool Engineering Committee, Gregory was petroleum engineer in the Yates and Crane fields for Humble Oil & Refining Company. He plans to give a good share of his time to consulting work on proration, conservation and evaluation problems in fields other than Yates.

C. N. VALERIUS has been transferred to Shreveport as district land man for Barnsdall Oil Company. He has opened an office at 607 Giddens-Lane building.

JOSH S. COSDEN, president of Cosden Petroleum Corporation, left Fort Worth headquarters late last week on a business trip to New York City.

DAVE ROBERTSON, land department employee of Shell Petroleum Corporation, with headquarters at Midland, Texas, is vacationing in Mexico City.

ARCH CLARK, chief engineer for Sun Oil Company, Dallas, spent several days last week at McAllen and other points in Southwest Texas where the company maintains field parties.

H. L. McQUISTON and A. V. Hester are operating The Osage Drilling Company at 1435 Maury Street, Houston. The concern was formerly located in San Antonio.

P. R. DEPUTY, chief geologist for Ralph E. Fair, Inc., with headquarters in Dallas, was a recent visitor to San Antonio and the parents of his wife, the former Miss Ray Stroud.

J. H. NICKS, A. E. Carter, and C. E. Malott were granted a charter to operate the Sannix Oil Company of San Antonio.

J. M. HEWGLEY and W. G. Gish, vice presidents of the Transwestern Oil Company, were Corpus Christi visitors last week. Hewgley is in charge of operations.

HOWARD M. JOHNSON, formerly with the land department of Sun Oil Company in Kansas, has been transferred to the Enid, Oklahoma, scouting district.

E. J. McCURDY and G. M. Richardson, independent operators of Fort Worth, Texas, were in Houston recently.

M. C. McGEHEE, JR., president of Texas Gulf Producing Company, Houston, is on an inspection tour through newly discovered oil districts in Illinois.

GAGE LUND, manager of the Houston office of Standard Oil Company of Texas, is on a business trip to the coastal region of Louisiana.

ERNEST O. THOMPSON, Texas railroad commissioner and chairman of the Interstate Oil Compact commission, recently addressed the American Bar Association in Kansas City. He discussed the experience in the operation of the Interstate Oil Compact.

H. M. HARRELL, Houston drilling contractor who drilled the deepest test for oil in Harris County, is in Shreveport, Louisiana.

E. P. JONES, Texas operator and drilling contractor, has moved from San Antonio to Houston.

ERNEST K. PARKS, production engineer for Standard Oil Company of California, Los Angeles, was chairman of the program committee for the fall meeting of the petroleum division, A.I.M.E., which was held in Los Angeles, October 1.

JEAN BARTE, employee in the production department of Danciger Oil & Refineries, Inc., has been transferred to scouting duty in West Central Texas, with headquarters at Abilene.

E. P. JONES, independent operator formerly of San Antonio, has established offices in Houston.

J. C. WRIGHT, divisional pipe line superintendent for Panhandle Eastern Pipe Line Company, with Mrs. Wright, were renewing old friendships in Oklahoma recently, stopping in Tulsa prior to returning to eastern Kansas following a four-state tour through the southwest.

SAM N. JACKSON, field worker for Sun Oil Company in the East Texas field and former football player for Southern Methodist University, has been assigned to scouting duty.

JOHN BRICKER, West Texas scout for Humble Oil & Refining Company, with headquarters at Midland, is vacationing in Kansas.

J. HARRY WOOD, vice president and general superintendent for Atlantic Pipe Line Company, returned to headquarters at Dallas last week after attending a conference of officials at Philadelphia.

W. G. PRINCE, field production superintendent for Stanolind Oil & Gas Company, at Lake Charles, Louisiana, now is with Texas Crusader Oil, Incorporated, Houston, in the same capacity.

W. C. COOLIDGE, head of the Houston office of Atlantic Refining Company, is vacationing in California.

F. G. JAMISON, Continental Oil Company, has been transferred from Wichita, Kansas, to Denver, Colorado.

ACE CLINGMAN, formerly with Gillespie & Moore, Incorporated, Tulsa, has joined the Kingwood Oil Company, Tulsa, as drilling supervisor in southern Illinois area.

S. H. ADAMS, R. M. Linden, J. C. Ayer, J. E. McGaughey and R. J. Burn were reelected directors of Lethbridge Petroleum & Refineries, Ltd., when shareholders held their annual meeting in Calgary, Alberta, Canada, last week.

Gas President

N. C. McGOWEN

. . . He was elected president of American Gas Association last week. McGowen is president of United Public Service Company.

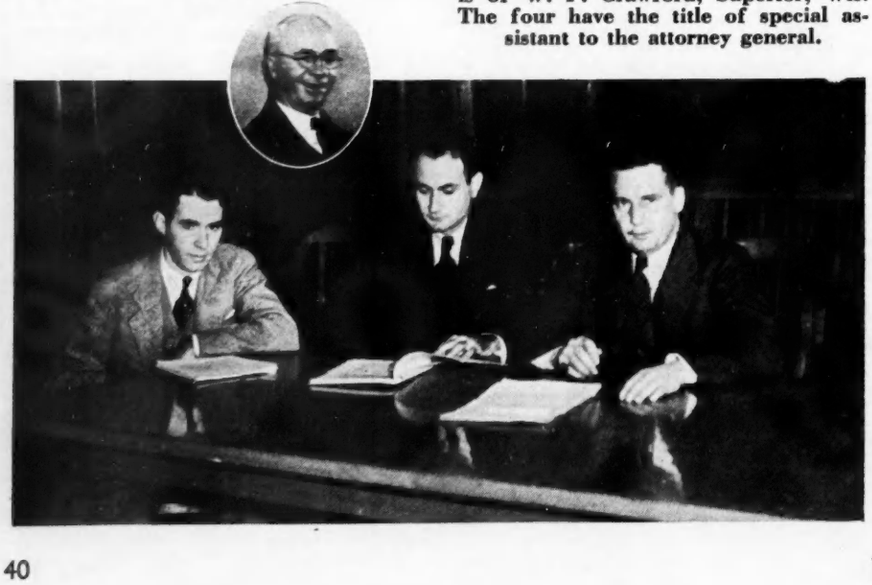
AARON COHEN, president of Aarco Oil & Gas Company, Baltimore, Maryland, was a recent Houston visitor.

HARRY B. HICKMAN, independent operator of Shreveport, Louisiana, was in Houston recently.

JOHN L. SULLIVAN, president of Texon Royalty Company, and a resident of San Antonio, is in New York City.

Oil Prosecutors

Four of the federal attorneys who will handle the prosecution of the government's anti-trust suit against 24 oil companies, 44 individuals and three trade papers at Madison, Wis. Seated at the prosecutor's table in the court room are (left to right): Grant W. Kelleher, Butte, Mont.; Hammond E. Chaffetz, Washington, D. C.; and John Henry Lewin, Baltimore, Md. The inset photo is of W. P. Crawford, Superior, Wis. The four have the title of special assistant to the attorney general.



WALTER F. THORN, Cardston, Alberta, vice president and managing director of Franco Oil., Ltd., was in Calgary last week.

H. D. MITCHELL, Standard Oil Company of Venezuela, is investigating the Central Illinois Coal Basin area for his company. He is making headquarters in Flora.

DR. E. H. SELLARDS, professor of economic geology, University of Texas, Austin, was the principal speaker at the Houston Geological Society September 30. His subject was "Some Chapters in the Geologic History of Texas."

LAMAR LUNT, petroleum engineer for Gulf Oil Corporation, has resigned to become district engineer for Gas Lift Corporation in West Texas, with headquarters at Midland.

O. A. MILLIKEN, compressor station superintendent at Houstonia, Missouri, for Panhandle Eastern Pipe Line Company, with Mrs. Milliken, were recent visitors in Tulsa following a pleasure trip through southwestern states.

FRANK MOONEY, with Amerada Petroleum Company, spends his spare time studying at St. Mary's University, San Antonio.

F. B. LEFEVRE, of Adams, Lefevre and Spice, independent operators, is off to New York to attend the World Series.

THOMAS D. HUMPHRIES, independent operator of Dallas who recently opened a new pool in Jones County, West Texas, was recently in Houston.

J. W. WINFREY, Humble Oil & Refining Company, Houston, has recently been transferred from Amelia to Thompsons, Texas Gulf Coast district.

NELSON DICKERMAN, New York, has been made vice president of Amiranian Oil Company and Inland Exploration Company, with headquarters at 39 Broadway, New York.

ELDON DUNLAP, development department, Standard Oil Company of California, Los Angeles, is expected to be transferred to the Inglewood field, California, for petroleum engineering work.

DIED:

JOHN CASHDOLLAR, Pennsylvania oil operator, died September 24 at Portersville, Pennsylvania, while on a business trip. He was 65, and his home was in Butler. Surviving are his widow and two sons.

B. J. JONES, 43, oil field worker in the Talco, Texas, district, died September 23 of burns received in an explosion.

FRANCIS R. McDERMOTT, oil producer of Bolivar, New York, died September 19 after an illness of three weeks. He was 52. Surviving are his widow; one daughter, Frances Ellen; his parents, and a sister, Mary McDermott, all of Bolivar.

Markets Unsteady

Current weakness indicates industry must safeguard present advantages although prices hold firm

ALTHOUGH prices for crude and refined oils have remained unchanged, markets lately have demonstrated weakness or unsteadiness in various instances, and it has become increasingly obvious that the industry in the weeks ahead must safeguard closely the advantages it now holds.

The situation has been materially brightened by the strict control of crude oil production scheduled for October, but the industry still is suffering from excesses of crude production and refinery activity during August and the early part of September.

Crude oil production lately has been running around 21 percent above the levels last year, while the demand for petroleum has been this year only about 11 percent higher than last year, and the heavy output of crude has led to similarly large output at the refineries. The latest available report on refinery operations indicated that the plants were processing around 15 percent more crude oil than at this time last year.

Gasoline Stocks Too High

The immediate effect of excessive refinery output has been an over-production of gasoline. Gasoline output has been too high to permit the usual seasonal withdrawals of gasoline from storage at this time of the year, and consequently, gasoline stocks in the United States currently are about 16 percent higher than at this time last year. The demand for gasoline, on the other hand, has been running this year only about 10 percent higher than last year.

Heavy inventories of gasoline are having an adverse effect on gasoline prices, despite the fact that quotations so far have been holding at former levels.

Gasoline Market Unsteady

However, last week brought some indication in the Mid-Continent that tank car prices of gasoline are holding at old levels with difficulty. Jobber purchases in the open market were reported to be light, as most supplies were being secured under contract. Nevertheless, refiners were not disposed to offer gasoline at prices lower than established levels.

Meanwhile, retail markets for gasoline continue unsettled in various districts of the country, and last week brought further reductions of retail posting in some areas. For instance, retail prices were reduced one cent a gallon in the Atlanta, Georgia, district. Sub-normal prices continue in effect also in various other districts, including North Texas, East Texas, and various points in Oklahoma.

Fuel Market Strong

The market for light fuel oil continues remarkably strong with all available supplies reported closely held.

The strength of fuel oil markets is based on the strong inventory position that the industry still occupies. Total stocks of gas and fuel oil in the United States currently are only about 4 percent larger than the supplies held at this time last year. The demand for fuel oil, on the other hand, has been running about 10 percent higher this year than last year.

Caution Needed

The recent trends of prices have given concrete evidence of the need for caution and restraint on the part of the oil industry in the coming weeks.

But, at the same time, much encouragement is given by the program of crude oil production control that is scheduled between now and November 1. The leading oil producing states have promulgated October allowables that conform closely with the estimates of demand made by the Bureau of Mines.

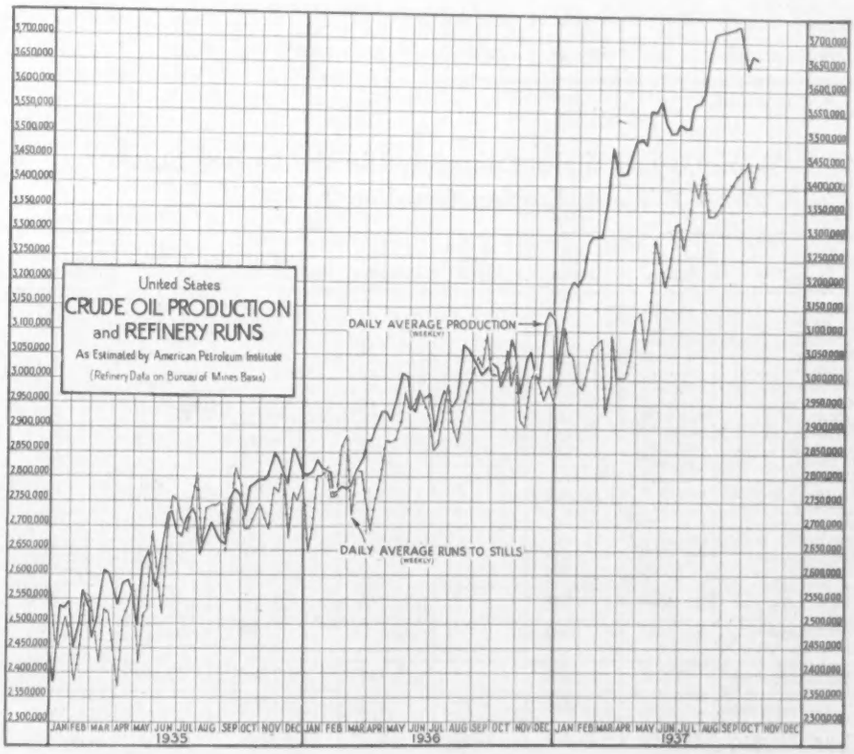
Lisbon Purchases Continued

Gulf Oil Corporation has decided to purchase ratably from Lisbon field (North Louisiana) producers 5000 barrels of crude daily after October 1, instead of discontinuing purchases, as previously planned. Prior to that date the company was buying 14,000 barrels daily in the field. The further purchases will continue until another pipe line into the field is completed.

Basis for Purchases Changed

Other purchasers of crude oil in Texas were expected to follow the lead of Humble Oil & Refining Company in changing the method of computing quantities to 100 percent instead of 99 percent of the measurement. The Humble company made such a change effective October 1, issuing a new price schedule which did not embody changes of postings but which indicated the company will adopt the change in figuring Texas purchases. In effect, the change represented a one percent increase for the producers selling crude oil to the company. The company is among the largest purchasers of Texas crude.

This change was made in compliance



with regulations recently ordered by the Texas Railroad Commission, although the regulations have been contested by various companies.

The Humble company also purchases crude oil in New Mexico, and the new Humble price schedule is so worded as to make the purchases in that state conform with the regulations there. The new Humble schedule takes care of this matter in these words:

"The prices for crude oil are based upon the computation of quantities (including all corrections, adjustments, and deductions) in accordance with the currently existing rules and regulations of the agency authorized to regulate the transportation of crude in the state where the crude oil is produced."

Mid-Continent Prices

Tank car prices at Mid-Continent refineries late last week were largely the same as for the preceding several weeks.

U. S. motor gasoline continued to range in the Oklahoma market about as follows: 62 octane and below, 5 to 5⅛ cents a gallon; 63 to 66 octane, 5⅜ to 5½ cents; 67 to 69 octane, 5⅝ to 5⅞ cents; and 70 to 72 octane, 6 to 6⅛ cents.

Prices in the Chicago market ranged as follows: 62 octane and below, 4¾ to 5 cents; 63 to 67 octane, 5⅛ to 5⅝ cents; and 68 to 70 octane, 5⅝ to 6 cents.

At East Texas refineries the most common product, 60-62, 400 end point gasoline, was priced commonly at 5 cents a gallon.

Kerosene prices f.o.b. Oklahoma refineries ranged from 4 to 4¼ cents a gallon for the 41-43 water white grade, and from 4¼ to 4⅜ cents for the 42-44 water white grade. Corresponding prices in the Chicago market were: 4 to 4¼ cents and 4⅛ to 4⅜ cents.

CRUDE OIL PRICES

Complete tables of prices paid for crude oil at the well in principal fields is shown on page 46. This schedule will appear only in the first issue of each month.

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports.

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	Gas & Fuel Oil Stocks (Barrels)
January 2, 1937	3,121,400	3,030,000	287,659,000	62,661,000	106,330,000
January 30	3,194,050	2,995,000	285,384,000	69,540,000	102,078,000
February 27	3,296,100	3,085,000	288,121,000	78,786,000	99,534,000
March 27	3,431,300	3,060,000	293,587,000	*83,538,000	96,591,000
April 24	3,496 400	3,125,000	300,737,000	82,303,000	94,100,000
May 29	3,573,000	3,245,000	306,445,000	78,758,000	96,139,000
June 26	3,529,600	3,235,000	307,679,000	75,427,000	100,395,000
July 31	3,591,900	3,425,000	308,250,000	70,872,000	108,209,000
August 28	*3,731,450	3,425,000	309,506,000	66,997,000	112,111,000
September 4	3,692,550	3,445,000	310,417,000	67,048,000	113,443,000
September 11	3,642,400	*3,455,000	309,054,000	66,456,000	114,666,000
September 18	3,671,200	3,400,000	309,405,000	66,057,000	116,178,000
September 25, 1937	3,666,300	*3,455,000	.....	65,620,000	116,472,000
September 26, 1936	3,030,050	2,990,000	294,568,000	56,472,000	112,504,000

* All time peak.

Summary of Wells Completed in the United States Week Ending October 2, 1937

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total, 1937	Total this Date. 1936
Alabama	.....	.....	.....	.....	.....	1	2
Arkansas	1	.....	.....	1	.....	88	74
California	33	23	.....	10	10,730	1,141	866
Colorado	4	.....	.....	4	.....	15	10
Florida	.....	.....	.....	.....	.....	1	1
Illinois	15	12	.....	3	1,996	193	4
Indiana	.....	.....	.....	.....	.....	90	150
Kansas	60	45	2	13	56,174	2,015	1,276
Kentucky	19	6	4	9	151	316	219
Louisiana	17	13	.....	4	8,376	734	781
Michigan	19	15	.....	4	2,421	721	598
Mississippi	.....	.....	.....	.....	.....	11	6
Montana	5	4	1	.....	169	151	132
Nebraska	.....	.....	.....	.....	.....	.....	.....
New Mexico	20	17	.....	3	39,493	541	437
New York	.....	.....	.....	.....	.....	14	.....
Ohio	37	8	14	15	218	1,142	1,443
Oklahoma	51	39	3	9	29,592	2,335	2,236
Pennsylvania	.....	.....	.....	.....	.....	151	.....
Texas	355	276	8	71	468,436	11,569	9,476
Utah	.....	.....	.....	.....	.....	.....	.....
West Virginia	23	5	15	3	26	700	486
Wyoming	.....	.....	.....	.....	.....	80	64
Total this week	659	463	47	149	617,782	22,009	18.261
Total last week	595	416	57	122	541,908	.....	.....
Total this year	22,009	15,293	1,837	4,879	18,379,926	.....	.....

Imperial stops purchases of crude from Montana fields

The campaign of operators in the Turner Valley field of Alberta, Canada, to curb imports of United States crude bore fruit last week. Imperial Oil Company, Ltd., principal buyer in the Turner Valley field, stated its imports of crude from Montana would be discontinued October 1.

"We have no commitments for Montana crude after September 30, nor do we intend to make any," the statement said. "The policy of the company has always been to use Canadian raw material wherever possible, and the company intends to continue this policy."

Helps Turner Valley Little

At the Calgary offices of the company, Manager J. H. McLeod said discontinuance of imports would not result in a substantial increase in the amount of crude purchased in Turner Valley as gasoline consumption is dropping off rapidly with the approach of winter months.

W. S. Campbell, chairman of the Petroleum Producers' Association, organized when the company and the British American Oil Company, Ltd., the other buyer in the field, placed the proration order in effect, said:

"It is a clear indication that all parties of the industry are endeavoring to help in any way. Probably the greatest help which could be given now would be replacing of gasoline shipped by water and rail into Manitoba with the refined product from Turner Valley crude. We must first secure the western market, and then gradually supply eastern Canada as our production increases."

Oil group of A. C. S. meet

Tulsa.—First meeting in 1937 of the petroleum group of the American Chemical Society was held here October 2. A number of speakers were heard and a symposium delivered on lubrication and lubricating oils.

Comparison of Permits Granted for New Wells

STATE	Week Ending Oct. 2	Total this Mo.	Total this Year	Total this Date Last Year	1936 Year Total
Arkansas	4	4	190	75	103
California	27	27	1,190	802	1,054
Louisiana	35	35	974	857	1,107
Kansas	66	66	2,125	1,349	1,873
Michigan	18	18	747	558	762
Oklahoma	49	49	2,191	2,192	2,594
Texas	314	314	13,687	11,433	15,582
Total	513	513	21,104	17,266	23,075

Output Falls Again

Nation still producing 130,750 barrels daily in excess of recommended figure despite sharp drop

FALLING again, United States crude oil production averaged 3,640,050 barrels daily, which was 19,225 barrels a day less than in the previous week, and 130,750 barrels daily more than the Bureau of Mines recommendation for average daily production in September.

It has been indicated that the state allowables for the principal oil producing states will be reduced, and it can be expected, therefore, that the production in the month of October will be closer to the actual demand and consequently more in line with the Bureau of Mines recommendation, than it has been in September.

Four Cause Decrease

The decrease over the previous week resulted from lower production in Oklahoma, Kansas, California and New Mexico, four of the six leading producing states. The others, Texas and Louisiana, showed a small increase.

Texas last week averaged 1,501,000 barrels daily, which was 4900 barrels a day more than in the previous week, and 87,400 barrels a day more than the Bureau of Mines suggestion.

Oklahoma showed a decrease of 19,275 barrels a day, the production having been 581,175 barrels daily, which was 52,423 barrels less than the estimated market demand.

Kansas output was down 8525 barrels a day, averaging 184,500 barrels daily, which was 16,400 barrels a day less than the Bureau of Mines recommendation.

Louisiana output increased 3300 barrels to 263,550 barrels daily, and was 15,650 barrels over the estimated demand.

California showed a small decrease of 2000 barrels daily, averaging 688,000 barrels a day, which was 49,800 barrels a day more than the Bureau of Mines estimate of needed production.

New Mexico production was down 100 barrels, at 114,400 barrels daily, which was 13,000 barrels in excess of the Bureau of Mines recommendation.

California reduces crude and other stocks in August

Los Angeles.—Stocks of crude oil and other petroleum products in California were reduced 2,014,255 barrels during August, according to report just issued by the California office of the American Petroleum Institute. This is in spite of a daily average crude oil production of 673,422 barrels during that month in the state.

Stocks of fuel oil, residuum and heavy crude were increased 51,187 barrels, but stocks of gas oil and Diesel oil were decreased 134,072 barrels, while storage of high gravity crude oil was decreased 1,271,512 barrels. Natural gasoline stocks were off 65,742 barrels and storage of gasoline was down 834,787 barrels.

A total of 134 wells were completed in the state in August; 31 were dry holes. The oil wells had a total initial production of 37,966 barrels. At end of month 247 wells were actively drilling in the state. This is a decrease of 33 compared with previous month.

Oklahoma receives 49 new locations

Tulsa.—Field activity kept the active well list on an even keel for Oklahoma last week when 49 wells were started while 51 were being completed. The completion list included 39 oil wells, good for 29,592 barrels initial output, 3 gas wells, and 9 dry holes.

United States Crude Oil Production

Estimates Compiled by The OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in Sept.)	ACTUAL PRODUCTION: BARRELS DAILY FOR WEEK ENDING	
		October 2	September 25
TEXAS—			
Texas Panhandle	.....	81,700	82,200
North Texas	.....	74,600	74,500
West Central Texas	.....	33,500	33,800
West Texas	.....	224,800	223,500
East Central Texas	.....	116,600	116,800
East Texas Field	.....	478,800	477,500
South Texas	.....	271,700	272,100
Texas Gulf Coast	.....	219,300	215,700
Total Texas	1,413,600	1,501,000	1,496,100
OKLAHOMA—			
Oklahoma City	.....	141,750	147,150
Seminole Area	.....	113,975	115,275
Crescent	.....	7,850	7,875
Lucien	.....	14,650	14,750
Fitts	.....	74,325	79,725
Edmond	.....	15,450	15,500
Moore	.....	9,675	9,875
Others	.....	203,500	210,300
Total Oklahoma	633,600	581,175	600,450
KANSAS—			
Ritz-Canton	.....	4,900	4,850
Chase	.....	7,350	7,925
Hollow-Nikkel	.....	2,575	2,625
Sedgwick	.....	3,825	3,800
Burrton	.....	14,025	14,200
Lorraine	.....	4,075	4,150
Russell County	.....	36,100	36,675
Silica	.....	15,350	18,475
Others	.....	96,300	100,325
Total Kansas	200,900	184,500	193,025
Louisiana—			
North Louisiana	.....	88,150	87,050
South Louisiana	.....	175,400	173,200
Total Louisiana	247,900	263,550	260,250
ARKANSAS	29,900	35,125	31,050
CALIFORNIA—			
Long Beach	.....	59,500	59,500
Santa Fe Springs	.....	42,000	42,500
Huntington Beach	.....	36,500	38,000
Dominguez	.....	29,000	30,000
Inglewood	.....	15,000	17,000
Ventura Avenue	.....	35,000	35,000
Seal Beach	.....	9,500	9,000
Midway-Sunset	.....	77,000	73,500
Elwood	.....	8,000	8,000
Kettleman Hills	.....	81,500	80,000
Mountain View	.....	18,000	18,000
Playa del Rey	.....	8,000	8,000
Wilmington	.....	60,000	60,000
Others	.....	209,000	211,500
Total California	638,200	688,000	690,000
MOUNTAIN STATES—			
Wyoming	55,900	67,600	58,900
Montana	18,200	18,300	18,100
Colorado	5,000	4,600	4,600
Total Rocky Mountain States	79,100	80,500	81,600
NEW MEXICO	101,400	114,400	114,500
EASTERN STATES	124,300	138,200	140,200
MICHIGAN	40,400	53,600	52,100
Total United States	3,509,300	3,640,050	3,659,275

CRUDE OIL PRICE SCHEDULES

(Figures Revised to October 1, 1937)

MID-CONTINENT GRAVITY SCALE PRICES (Posted January 28, 1937)

(Some fields of Mid-Continent have flat price postings, and are shown separately.)

Gravity	Okla.-Kans.	North La.-Ark.	Rodessa, La.-Tex.	North & W. Cent. Tex.	East Cent. Tex.	Gray Co. Tex.	Carson Hutchinson Co. Tex.	[1]Conroe, Tex. Type	West Tex.-N. Mex.	[2]Gulf Coast (Tex.-La.)	[3]Some La. Gulf Areas	[4]Anahuac, Tex. Type	[5]Refugio, Tex. Type	[6]Mirando, Tex. Type
17–17.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	*$0.90	.....	.....	.....	.....
18–18.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.92	.....	.....	.....	.....
19–19.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.94	.....	.....	.....	.....
20–20.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.96	*$0.90	.....	*$1.01	*$0.96
21–21.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.98	.93	.....	1.03	.98
22–22.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.01	.96	.....	1.05	1.00
23–23.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.04	.99	.....	1.07	1.02
24–24.9	*$0.98	*$0.90	*$0.93	*$0.88	.....	.....	.....	.....	.....	1.07	1.02	.....	1.09	1.04
25–25.9	1.00	.92	95	.90	.....	.....	.....	.....	*$0.78	1.10	1.05	.....	1.11	1.06
26–26.9	1.02	.94	.97	.92	.....	.....	.....	.....	.80	1.13	1.08	.....	1.13	1.08
27–27.9	1.04	.96	.99	.94	.....	.....	.....	.....	.82	1.15	1.10	.....	1.15	1.10
28–28.9	1.06	.98	1.01	.96	*$1.03	.....	.....	*$1.20	.84	1.17	1.12	.....	1.17	1.12
29–29.9	1.08	1.00	1.03	.98	1.05	.....	.....	1.22	.86	1.19	1.14	.....	1.19	1.14
30–30.9	1.10	1.02	1.05	1.00	1.07	.....	.....	1.24	.88	1.21	1.16	$1.16	1.21	1.16
31–31.9	1.12	1.04	1.07	1.02	1.09	.....	.....	1.26	.90	1.23	1.18	1.18	1.23	1.18
32–32.9	1.14	1.06	1.09	1.04	1.11	.....	.....	1.28	.92	1.25	1.20	1.20	1.25	1.20
33–33.9	1.16	1.08	1.11	1.06	1.13	.....	.....	1.30	.94	1.27	1.22	1.22	1.27	1.22
34–34.9	1.18	1.10	1.13	1.08	1.15	*$0.96	*$0.91	1.32	.96	1.29	1.24	1.24	1.29	1.24
35–35.9	1.20	1.12	1.15	1.10	1.17	.98	.93	1.34	.98	1.31	1.26	1.26	1.31	1.26
36–36.9	1.22	1.14	1.17	1.12	1.19	1.00	.95	1.36	1.00	1.33	1.28	1.28	1.33	1.28
37–37.9	1.24	1.16	1.19	1.14	1.21	1.02	.97	1.38	1.02	1.35	1.30	1.30	1.35	1.30
38–38.9	1.26	1.18	1.21	1.16	1.23	1.04	.99	1.40	1.04	1.37	1.32	1.32	1.37	1.32
39–39.9	1.28	1.20	1.23	1.18	1.25	1.06	1.01	1.42	1.06	1.39	1.34	1.34	1.39	1.34
40 & Above.	1.30	1.22	1.25	1.20	1.27	1.08	1.03	1.44	1.08	1.41	1.36	1.36	1.41	1.36

* Minimum price and applies also to purchases of lower gravity.

[1] Conroe, Tomball, Satsuma, Raccoon Bend Deep fields.

[2] Upper Texas Gulf Coast, including Goose Creek, Spindle Top, etc., and some fields of Louisiana Gulf Coast, including Black Bayou, White Castle, Vinton, Hackberry, etc.

[3] Choctaw, Darrow, Lockport, Iowa (Magnolia posting), Cameron Meadows, etc.

[4] Anahuac, Dickinson, Flour Bluff, Turtle Bay.

[5] Lower Texas Gulf Coast, including Refugio, Saxet, etc. Posted 7-6-37.

[6] Duval, Jim Hogg, Webb and Zapata Counties; Heyser, Placedo fields. Posted 7-6-37.

Mid-Continent Flat Prices

	Flat Price	Date Posted
Arkansas:		
Smackover	$0.90	1-28-37
Louisiana:		
Garden Island	1.37	1-28-37
Lafitte	1.24	1-28-37
Texas:		
East Texas	1.35	5-22-37
Talco	.73	1-28-37
Livingston, Cleveland	1.27	1-28-37
Hardin	1.15	1-28-37
Van	1.10	1-28-37
Pettus	1.37	1-28-37
Pecos County	.91	1-28-37
Pecos Shallow	.81	1-28-37
Luling	1.00	1-28-37
Lytton Springs	1.12	1-28-37
Salt Flat, Darst Creek, Hilbig, Carroll, Clark, Zoboroski	1.09	1-28-37

Michigan Prices

Central Michigan	$1.27	7-24-37

Middle West Prices

Lima	$1.25	1-28-37
Illinois	1.35	1-28-37
Princeton	1.35	1-28-37
Western Kentucky	1.40	1-28-37

Rocky Mountain States Prices

	Flat Price	Date Posted
Elk Basin	$1.30	1-28-37
Frannie Light	.70	11- 4-36
Frannie Heavy	.62	11- 4-36
Grass Creek Light	1.30	1-28-37
Grass Creek Heavy	.62	11- 4-36
Hamilton Dome	.57	11- 4-36
Big Muddy	1.23	1-28-37
Rock Creek	1.20½	1-28-37
Sunburst	1.20	1-28-37
Lance Creek	.97	1-28-37
Osage	1.08	.....
Cat Creek	1.07	8-25-33
Cut Bank	1.35	6- 3-36
Pondera	1.05	9-29-33
Hogback	1.00	9- 8-33

Pennsylvania Prices

Bradford-National Transit	$2.60	9- 1-37
Sw. Pa. Pipe Line	2.30	9- 1-37
Eureka Pipe Line	2.25	9- 1-37
Buckeye Pipe Line	2.10	9- 1-37
Corning Grade	1.27	9- 2-37

Canada Prices

Petrolia	$2.10	9- 9-33
Oil Springs	2.17	9- 9-33

Mexico Prices

F.O.B. Tampico; net; U.S. Currency, buyer pays tax	$1.24	.....

Major Price Changes

	Penna. (Nat. Tr.)	Mid.-Cont. (36 Gr.)	Calif. (26 Gr.)
June 19, 1933	Up 10	Up 19	.....
June 26, 1933	Up 10	.....	Up 9-12
July 6, 1933	Up 13	Up 10	.....
July 17, 1933	Up 15	.....	.....
July 28, 1933	Up 15	.....	.....
August 11, 1933	Up 10	.....	.....
August 24, 1933	.....	Up 10	.....
August 30, 1933	Up 15	.....	.....
September 6, 1933	Up 10	Up 10	Up 15
September 8, 1933	.....	Up 15	.....
May 1, 1934	Up 10	.....	.....
November 6, 1934	Cut 25	.....	.....
December 6, 1934	Cut 25	.....	.....
January 4, 1935	Up 15	.....	.....
February 4, 1935	Up 15	.....	.....
May 16, 1935	Cut 15	.....	.....
June 26, 1935	Cut 15	.....	.....
July 16, 1935	Cut 10	.....	.....
August 29, 1935	.....	.....	Cut *4
September 6, 1935	Up 5	.....	.....
October 29, 1935	Up 15	.....	.....
November 1, 1935	.....	.....	Up *29
November 18, 1935	Up 15	.....	.....
December 6, 1935	.....	.....	Up *9
January 9, 1936	.....	Up 10	.....
January 13, 1936	Up 15	.....	.....
February 26, 1936	.....	.....	Up †5
December 28, 1936	Up 12	.....	.....
January 28, 1937	.....	Up 12	.....
February 24, 1937	Up 10	.....	.....
June 7, 1937	Up 15	.....	.....
September 1, 1937	Cut 22	.....	.....

* Signal Hill 26 gravity. † Seal Beach 26 gravity.

Crude Production Taxes

Oklahoma—Five percent of gross value less royalty interest.

Texas—2¾ cents or 2¾ percent, whichever is higher.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

Arkansas—2.6 percent of gross market values.

Montana—Two percent of gross value at well and ⅜ of 1c per barrel.

New Mexico—Severance tax of 2 percent on oil and gas.

Wyoming and New Mexico—Production tax based upon state and county assessments.

California—.66443 mills per barrel of oil produced and 17.39 cents per acre on proved oil lands.

IN THE

Financial Field

Oil shares suffer from general weakening of selling wave in general market.

* * *

Third quarter statements expected to show substantial profits for that period.

OIL company securities have continued to show only average strength and popularity, in contrast with the better than average showing earlier in the year.

In the recent waves of selling, oil stocks have weakened about as much as the market as a whole. And in recent days of recovery, the oil shares have improved only about in proportion to the gains made by stocks in other industries.

Until several weeks ago, the oil company shares generally were showing better than average stability. In the declines that occurred, the oil shares commonly proved resistant, while in temporary rallies, the oil shares were among the leaders moving upward.

Showing Considered Good

While the oil securities lately have lost some of their previous special popularity, there are some observers, nevertheless, who take an optimistic view toward the oil shares for the reason that in recent weeks their showing easily might have been below the average, in view of the fact that these shares were such heavy favorites earlier in the year. This reasoning presumably takes into consideration the fact that the oil industry is passing out of the period of heavy summer and early fall motoring and that consumption of petroleum will be seasonally lower in the months ahead.

It is generally assumed that the end of the summer normally brings some selling of the oil company shares because of expectations of a let-down in business during the winter.

Favorable Factors Prevail

However, various influences are at work indicating that conditions in the petroleum industry will continue satisfactory for some time and that earnings, consequently, will remain favorable.

Strict control of crude production is in prospect for October under the allowables that have been prescribed by the leading producing states. These allowables are expected to result in a virtual balance between crude production and market demand. Similarly, the strict control of production is expected to result in moderate refinery operations.

Inventory Position Good

Meanwhile, the industry continues to retain the advantageous inventory position that it has laboriously achieved through self-restraint in the past several years.

Crude oil inventories are at satisfactory levels, as they are only slightly higher than at this time last year, while the demand for petroleum is substantially higher than at this time a year ago.

Similarly, the inventories of refined products, in most instances, are at economic levels. Fuel oil stocks, in fact, probably are somewhat lower than they should be, in view of the present and prospective demand. Gasoline stocks, on the other hand, are indicated to be somewhat greater than present consumption justifies.

Earning Statements Awaited

Better estimates of the earnings of oil companies for this year will be made possible soon, as the third quarter of the year is at the end, and as many of the oil companies soon will issue reports on their earnings for the third quarter.

In advance of the issuance of these reports, it is indicated that the earnings for the period were well above those in the similar period last year and that the quarter probably was one of the most profitable three-month periods ever experienced by the oil industry.

Information available indicates that so far this year oil company profits have been about 50 percent greater

CALIFORNIA CRUDE OIL PRICES (Posted February 26, 1936).

(All gravity above those quoted take highest prices of that field.)

Gravity	Signal Hill	Seal Beach Alamitos Heights	Huntington Beach	Inglewood	Playa Del Rey	Olinda Brea Canyon	Athens Rosecrans	Elwood Terrace	Torrance	Richfield	Whittier East Coyote La Habra	Montebello	West Coyote Hills	Santa Fe Springs	New Hall McKittrick Kern River Round Mountain	Mountain View	Midway-Sunset Buena Vista Hills Elk Hills	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$.80	$.79	$.78	$.79	$.80	$.76	....	....	$.80	$.76	$.76	$.77	$.78	.....	$.70	....	$.70	$.70	$.70	....
15-15.9	.80	.79	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	.....	.70	....	.70	.70	.70	....
16-16.9	.80	.79	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	.....	.70	....	.70	.70	.70	....
17-17.9	.80	.79	.78	.81	.80	.76	....	....	.80	.76	.76	.77	.78	.....	.70	....	.70	.70	.70	....
18-18.9	.80	.79	.78	.84	.80	.78	....	....	.82	.76	.76	.77	.78	.....	.70	....	.70	.70	.70	....
19-19.9	.82	.79	.82	.87	.84	.81	....	....	.85	.76	.78	.77	.78	.....	.70	$.70	.74	.74	.71	$.70
20-20.9	.85	.79	.85	.90	.88	.84	....	....	.88	.78	.82	.77	.80	.....	.....	.70	.78	.78	.72	.70
21-21.9	.88	.79	.89	.93	.93	.88	....	....	.91	.80	.85	.77	.84	$.78	.....	.73	.82	.82	.74	.70
22-22.9	.92	.82	.92	.96	.98	.92	....	....	.93	.84	.89	.79	.88	.78	.....	.77	.87	.86	.78	.72
23-23.9	.95	.86	.96	.99	1.02	.96	$.84	....	.96	.88	.93	.82	.92	.78	.....	.80	.92	.90	.82	.76
24-24.9	.99	.91	1.00	1.02	1.06	.99	.88	....	.99	.91	.96	.85	.96	.82	.....	.84	.97	.94	.86	.79
25-25.9	1.03	.95	1.03	1.05	1.11	1.03	.93	....	1.02	.95	....	.89	.99	.86	.....	.88	1.01	.98	.90	.83
26-26.9	1.06	1.00	1.07	1.09	1.16	1.06	.98	....	1.05	.98	....	.92	1.03	.90	.....	.91	1.06	1.02	....	....
27-27.9	1.10	1.05	1.11	1.12	....	1.10	1.03	....	....	1.02	....	.96	1.06	.95	.....	.95	1.10	1.06	....	....
28-28.9	1.14	1.10	1.14	1.15	....	1.14	1.07	....	....	1.06	....	.99	1.10	.99	.....	.99	1.15	1.10	....	....
29-29.9	1.17	1.15	1.18	1.18	F.O.B.	1.17	1.12	....	....	1.09	....	1.03	1.14	1.03	.....	1.02	1.20	1.14	....	....
30-30.9	1.21	1.19	1.22	1.21	Pipe	1.21	1.17	F.O.B.	....	....	....	1.07	1.17	1.08	.....	1.06	1.25	1.18	....	....
31-31.9	....	.....	....	1.24	Line	1.24	1.22	Ship	Kettleman Hills			1.11	1.21	1.12	.....	1.09	1.29	....	....	....
32-32.9	....	.....	....	1.27	....	1.27	1.27	....	1.19			1.14	1.25	1.16	.....	1.13	1.34	....	....	....
33-33.9	....	.....	....	....	....	....	1.32	$1.28				1.18	1.28	1.20	.....	1.17	1.38	....	....	....
34-34.9	....	.....	....	....	....	....	1.37	1.32	....	1.23	....	1.22	1.32	1.25	.....	1.20	.....	....	....	....
35-35.9	....	.....	....	....	....	....	1.42	1.35	....	1.27	....	1.25	....	1.29	.....	....	.....	....	....	....
36-36.9	....	.....	....	....	....	....	1.46	1.39	....	1.31	....	1.29	....	1.33	.....	....	.....	....	....	....
37-37.9	....	.....	....	....	....	....	1.51	1.43	....	1.35	....	1.32	....	1.37	.....	....	.....	....	....	....
38-38.9	....	.....	....	....	....	....	1.56	....	....	1.39	....	1.36	....	1.42	.....	....	.....	....	....	....
39-39.9	....	.....	....	....	....	....	1.61	....	....	1.43	....	1.40	....	.....	.....	....	.....	....	....	....
40-40.9	....	.....	....	....	....	....	1.66	....	....	....	....	1.43	....	.....	.....	....	.....	....	....	....

than last year, and, therefore, about the same as in the similar period of 1929, which is the most profitable year on record. No serious impairment of the industry's earning power is in prospect for the final quarter of this year, and consequently, the industry appears to have a good chance to equal or exceed the record profits that it achieved in 1929.

Phillips Delays Plans

Activities of oil companies lately have embraced various matters of a financial nature.

In view of the present unsettled situation in the market for securities, Phillips Petroleum Company's directors have decided to extend the effective date for offering 444,905 shares of new capital stock. It was explained that the company does not find it necessary to decide at once whether or not it will do any new financing. If it is decided to make an offering to stockholders, a further announcement will be made, describing the plan and stating the price at which the stock will be offered. The offering that the company was contemplating was designed to raise funds for retiring certain current liabilities and funded debt and to reimburse the treasury of the company for capital expenditures that were made during the first six months of this year.

Labor Situation Discussed

Socony-Vacuum Oil Company has sent to stockholders a dividend check for 25 cents a share as declared August 3, 1937. The check was accompanied by a letter from John A. Brown, president, who commented particularly on the satisfactory relationship that the management of the company has had with its employes. He stated that the outstanding achievement of the petroleum industry in the past 15 years has been a sharp reduction in the prices of its products, plus a marked increase in the returns to labor.

"We believe, therefore," said Mr. Brown, "that the satisfactory relationship that exists between employes and management in the petroleum industry has been definitely in the best interest of the stockholder, the public, and the employe."

United Gas Changes

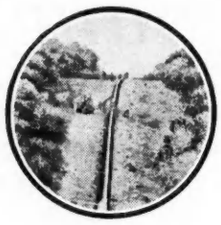
Two new companies have been formed by the United Gas system to take over the oil and gas properties formerly owned by United Gas Public Service Company and its three subsidiaries: United Production Corporation, Northern Texas Utilities Company, and Southern Gas Utilities, Inc.

The two new companies are Union Producing Company and United Gas Pipe Line Company.

Union Producing Company has acquired all oil and gas producing properties of United Gas Public Service Company and the mentioned subsidiaries, while United Gas Pipe Line Company has acquired all natural gas transmission facilities, including gasoline extraction plants formerly owned by the companies.

These changes, concentrating in two companies the functions previously performed by four companies, represent a further step in the simplification of the corporate structure and operations of the United Gas system.

PIPE LINE NEWS



Complete new Mirando district outlet.

* * *

Keystone gasoline line nearly finished.

One pipe line project has been completed and a second was nearing its final stages in the immediate vicinity of Corpus Christi. Both will give further outlets to the Mirando district, where an extensive campaign is underway developing both light and heavy crudes.

Duval Pipe Line Company's carrier from the Sweden field to the port of Corpus Christi, made its initial runs during the week. It is a 6-inch main, 67 miles long and has a capacity of 8000 barrels. It commences at a point near Benavides and continues eastward to Republic Pipe Line Company's terminal on the ship channel.

Humble Pipe Line Company's 8-inch looping project on its line between Benavides and the Viola pump station in Nueces County, at Nueces Bay, is nearing completion. This line will give the system two 8-inch mains.

The rapid expansion of pipe line and refinery projects to the Corpus Christi ship channel has necessitated additional space at the port. As a result, plans are now underway to materially extend the channel beyond the present limits. The new channel likely will run several miles beyond the Avery Point turning basin, where the last oil docks at the port are located.

Lisbon line under way

Gulf Refining Company amended its decision to halt all purchases of Lisbon crude oil at midnight September 30, and announced to producers in that field that it would continue to take 5000 barrels daily until such time as another line to the field is completed.

Under Gulf Refining Company's reduced purchases only about one-third of the field's daily yield from 121 wells is being taken and no new connections are to be made. The oil will be taken ratably from present connections.

Caddo Pipe Line Corporation, a subsidiary of Grogan Oil Company, will complete a 6-inch line to the field not earlier than October 15 but this company will be able to purchase only about 7000 barrels daily. Rumors of another pipe line company entering the field have been circulated.

Grogan Oil Company had negotiated with Gulf Refining Company for purchase of its Lisbon 8-inch line and gathering system but the purchase did not materialize.

Gasoline line ready soon

Construction work is about 75 percent complete on Keystone Pipe Line Company and Buffalo Pipe Line Company's 220-mile 8-inch refined oil products carrier, which will link Buffalo and Rochester with the farmer's system at Williamsport, Pa. Both concerns are subsidiaries of Atlantic Refining Company. The project is due to be completed and placed in service late in October.

Section of the line, extending northwest from Williamsport to the Pennsylvania-New York border, will be operated by the Keystone Pipe Line Company, and the remainder will be identified as the Buffalo Pipe Line Company.

A booster station is being erected at Butternut Grove, located a short distance northwest of Williamsport, and additional stations will be installed later.

Robert C. Tuttle, vice-president and general manager of both pipe line concerns, is supervising construction.

Two booster stations on Texas gas lines

Additional booster stations for the shipment of Texas Panhandle natural gas to North Texas cities have been authorized by two carriers. Northern Texas Utilities Company, which has a combination 12- and 16-inch line from the Shamrock area to Wichita Falls and intermediate points, is erecting a station on the NW H&GN Section 55, Block 17. Lone Star Gas Company is building a 15-unit station on NW H&GN Section 57, Block 17, to step up the capacity of its 18-inch carrier to Wichita Falls and Fort Worth. Both stations are in Wheeler County.

Illinois Line

Illinois Pipe Line Company subsidiary of Ohio Oil Company, is buying pipeline right-of-way for a line to extend from the Noble pool to Bridgeport, in southern Illinois, thus offering a new outlet for the "boom" district. From Bridgeport the crude will be sent to the Linco Refining Company plant at Robinson.

[*Continued from page 14*]

est honor bestowed by the American Gas Association upon its members, was given to George Wehrle, superintendent of the gas department of Public Service Company of Colorado, for making "the most outstanding contribution of an individual toward advancement of the gas industry." The award was in honor of his work in transferring Denver's fuel system from manufactured to natural gas.

Elmer F. Schuldt, assistant superintendent of the central district of Peoples Gas, Light & Coke Company, Chicago, was awarded the Beal medal and $100 for his paper on "The Precision Method of Locating Gas Leaks," judged the best technical paper presented at association meetings during the year.

Gas Sales Gain

President Russell, in his annual address on "The State of Our Industry," declared gas in commercial and industrial applications to be steadily advancing, the increase in natural gas during the past six months being 13 percent and the gain in manufactured gas 12.8 percent. Sales for domestic use, however, are on the decline, with the greatest drop registered in manufactured gas.

These conditions must be combatted by greater sales effort, attractive tariffs, better understanding on the part of the public, more individual selling, improved applicances and cooperative research, he declared.

Urges Gas Utilization

The necessity of studying utilization of gas produced with oil from oil wells was discussed by McGowen (incoming president) under the topic head, "Conservation — An Industry Opportunity and Responsibility." Declaring that problems of producing gas, supplying it to pipe lines and maintaining adequate gas reserves each year become more closely inter-related with many of the producing problems of the oil industry, McGowen said:

"The gas industry is concerned with present and future developments in oil production practices and should help in every way possible to secure more efficient use of gas energy to produce oil, realizing that this policy will result in many oil fields being used as dependable gas reserves.

"If gas is conserved and produced in a regular and orderly manner, two results follow: First, gas and pipe line companies can take the gas for their systems. Second, gas energy may be conserved to lift oil and greater oil recovery is assured, and more costly artificial lifting of oil is longer avoided.

"The gas industry has the opportunity and should assume the responsibility of cooperating whole-heartedly with the oil industry and with regulatory bodies to secure the best gas conservation program possible in the production of oil. The oil industry has the opportunity of cooperating with the gas industry and regulatory bodies to secure more efficient use of gas energy to produce oil and obtain revenue from gas produced as well as from oil. State regulatory bodies certainly will appreciate the opportunity to cooperate with serious efforts of the industry.

Gas Lines Expand

George E. Welker, president of United Natural Gas Company, Oil City, Pennsylvania, and chairman of the Natural Gas Department of the association, traced the history of the industry and its success in overcoming merchandising and engineering problems.

"The past few years have witnessed many major natural gas pipe line projects, and one of which would probably have been considered impractical only 20 years ago," Mr. Welker said. "We have seen large gas pipe lines enter several of our largest cities, and thereby the benefits of natural gas service were carried to great numbers of our people.

"About fifteen months ago, natural gas was first introduced into Detroit, Michigan, one of our largest industrial centers, and again in 1937 one of the major gas pipe line companies engaged in the Detroit project found it necessary to again appropriate over eleven million dollars for construction purposes in order to properly provide for and take care of its growing natural gas business.

"This rapid growth in long distance transportation of gas has involved the solution of many technical and engineering problems, since continuity of service was of prime importance and to guarantee same required efficient means of keeping the gas trunk lines clear and up to full capacity. This involved a more thorough understanding of the formation of gas hydrates due to the necessity for maintaining dry lines through the removal of excess water and gasoline vapors. Unprecedented dust storms in the Mid-Continent area made necessary the construction of practically dust-proof compressor stations, and unusual weather and corrosion conditions had to be met and conquered as they arose. We began to hear of systematic soil surveys, cathodic line protection and such matters were gone into in great detail in the effort to properly protect the huge investments required. Great credit is due the engineering and technical staffs of the industry and the government bureaus who so ably assisted them in their efficient handling of these technical problems."

Regulator Freezing

A technical discussion on "The Freezing of Regulators and Its Prevention," was delivered by M. A. Hardie, Jr., gas engineer of the Montana Power Company, Butte. He said:

"Although the occurrence of freezing in regulators may be somewhat remote from normal practice in most areas, that in itself should seem to be sufficient reason for outlining a definite course of procedure to be followed when that unfortunate circumstance does occur. When it is indicated without question that hydrates have accumulated in the regulator to such an extent as to seriously impair, if not totally preclude its operation, then two courses can be followed, these being dependent upon the nature of the installation.

"First, should the physical arrangement of material be such that the regulator can be by-passed, then cut the manifold regulator into operation, or if it is merely a by-pass, crack the valve and go on manual control. It should be here noted that this manually operated valve will require much closer attention than under normal circumstances. Inasmuch as conditions are critical for the formation of hydrates, it will probably start shutting off due to an accumulation of the latter. If it is at all possible, someone should be delegated to devote his entire attention to the control of pressure through this valve and continually readjust the ports to break lose what hydrate may be forming. As for the regulator which has been removed from service, reduce the pressure on it to atmosphere, and the hydrates will in time disappear. If the attempt is made to blow the water resulting from the dissipation of the hydrates from the regulator, it is better to use gas from the downstream side, inasmuch as its dew point has been reduced by expansion, and it is entirely probable that unless the fittings or turbulence creating devices are too compactly arranged that there has been a sufficient elapse of time to allow for transition of pressure energy into heat energy so that it will pick up the water vapor in the regulator. It is highly desirable that all the water be removed from the regulator if possible, since that much more time will be allowed before hydrates reoccur, and if there is no water present, then conditions will be such that water will have to be deposited from the gas, a nucleus isolated, and the phenomenon initiated. If it is not feasible to vent the regulator body to atmosphere, then it is possible that an inhibiting agent be injected into the inlet side of the regulator and then blow back as suggested above.

"For the second instance where it is not possible to remove the regulator for service, the most generally accepted course of procedure is to wrap sacks or matting about the regulator body and pour warm water over it. Due care should be exercised at the time this operation is performed to obviate the possibility of existing hydrates cutting loose when the regulator valve is nearly open and allowing a shot of pressure to occur on the downstream side of the regulator with the attendant possibility of diaphram rupture. The foregoing adjuration is pertinent to the injection of alcohol, glycerine, ammonia, or other inhibitors."

Gas Polymerization

The basic economic significance of gas polymerization, or the conversion of hydrocarbon gas into gasoline, although making its bow only three years ago, is coming to be recognized, according to J. S. Carey, of the M. W. Kellogg Company, and F. E. Frey, of Phillips Petroleum Company, who jointly presented a paper on "Polymerization: What It Means to the Gas Industry."

"One of the potentialities of polymer-

ization is that it creates a new definition of crude oil, since in essence natural gas constituents become raw material for the manufacture of motor fuel," they stated. "This viewpoint may ultimately have a decided influence in the search for new supplies of petroleum. Whereas, today incidental gas reserves are more or less of a nuisance in the search for crude oil, the values created by polymerization may suffice to make such petroleum reservoirs of definite economic value. A striking and well-known example of a corresponding development is the intensive search for natural gas in the Appalachian fields. Currently, the thermal content of natural gas produced in West Virginia is about six times the thermal content of the crude oil produced.

"On the other side of the picture, we are confronted with the growing opinion that the most valuable function of natural gas occurring with crude oil is to move the crude oil from the depths to the surface of the earth. This viewpoint leads obviously to a lowered yield of natural gas per barrel of crude oil produced and ultimately to pressure maintenance by returning natural gas to the formation in the many instances where a water drive is absent.

"Perhaps the most important factor to be considered is the time factor. In an economic situation where so many permutations of place and form utilities require detailed appraisal, where large investments are required and where technological advances may be expected, it is reasonable to assume that at least a decade will be taken in the full development of the potentialities. A close analogy is to be found in the petroleum industry in the history of oil cracking which was first heard of commercially about 1918, but which has only recently approached complete application to our supplies of petroleum. On this basis the effects of polymerization, no matter how far reaching, will be gradually felt with plenty of time for such economic readjustments as become necessary."

Lawyers favor state over federal control

Before the mineral law section of the American Bar Association, in the annual convention of the lawyers at Kansas City last week, one speaker advocated state control of drilling, one held the interstate oil compact up as argument against federal control of oil, and another warned that passage of the Lea bill for federal regulation of pipe lines would be a step toward nationalization of the oil and gas industries.

Excess Drilling Deprecated

Northcut Ely of Washington, D. C., law partner of Patrick J. Hurley, former secretary of war, declared that from 4000 to 5000 unnecessary oil wells are drilled annually at a cost of from $80,000,000 to $100,000,000. This expense he characterized as a self-imposed gross production tax equivalent to about 10 cents a barrel on the billion dollar yearly crude production.

Prices that would compensate for the over-investment can be achieved, he indicated, only artificially, through a form of price-fixing.

Whether or not the situation is to be remedied depends, he intimated, upon whether oil is to be regarded further as wild game subject to capture or as appurtenant to the land and subject to protection as other property.

Ely urged that the oil states, acting through the interstate oil compact commission, initiate a movement toward control of drilling.

Colonel Ernest O. Thompson of Austin, chairman of the interstate compact commission and member of the Texas Railroad Commission, asserted that the oil compact not only staved off federal control of the oil industry but also placed the industry under reasonable control and raised it from a precarious position to prosperity.

Pipe Line Bill Opposed

William A. Dougherty of New York declared that passage of the Lee bill is neither necessary nor justified. The measure, now pending before Congress, provides for regulation of pipe lines as interstate commerce. The speaker said 90 percent of gas moving interstate already is regulated by local commissions, in consequence of a Supreme Court decision holding those bodies could investigate reasonableness of city gate rates in fixing local charges. Passage of the bill, he said, would result in a far-reaching expansion of federal control, similar to that which occurred when regulation of railroads passed from the states to the central government.

Oklahoma City A. I. M. E. three-day program full

Oklahoma City.—Testing oil sands, determining gas-oil contacts, pressure distribution, well spacing, origin of oil, connate water, brines, pressure effects, flow equilibria, stray earth currents, flow of oil and gas mixtures, abnormal pressures, gels and blowouts are some of the interesting subjects to be discussed at the meeting of the petroleum division of the American Institute of Mining and Metallurgical Engineers here October 7, 8, and 9, according to Eugene A. Stephenson of Kansas University, secretary of the division.

The meetings in the Biltmore hotel will start off with the Thursday sessions, the program of which includes in part the following:

7:30 a. m. — Breakfast meeting for authors, presiding officers, and division officials.

9:00 a. m.—Registration of members and guests.

First Session

10:00 a. m.—First program session under chairmanship of M. Albertson, Shell Petroleum Corporation, Houston. Papers include: "Methods of Testing Oil Sands," by W. J. Murray, University of Texas; "Gas Caps and Methods of Determining Gas-Oil Contacts," by P. P. Gregory, chief petroleum engineer, Yates Pool Advisory Committee; "Pressure Distribution in Producing Oil and Gas Reservoirs," by A. J. Miles, Missouri School of Mines and Metallurgy, and Eugene A. Stephenson, department of petroleum engineering, University of Kansas; a discussion on the economic trend in production, and "Spacing of Oil Wells," by L. L. Foley, consulting engineer.

The afternoon session Thursday will be presided over by R. L. Huntington of the University of Oklahoma at Norman. Opening at two o'clock, it will include the following papers: "Origin of Petroleum," by E. Berl, Carnegie Institute of Technology; "Connate Water in Oil Sands," by R. J. Schilthuis, Humble Oil & Refining Company; "The Salinity of Waters in Buried Sediments," by Paul Weaver, Gulf Oil Corporation; "The Effect of Pressure Upon the Viscosity of Air, Methane and Two Natural Gasses," by B. H. Sage and W. N. Lacey, California Institute of Technology; "Flow Equilibria of Two Immiscible Liquids in Unconsolidated Oil Sands," by E. N. Dunlap, Standard Oil Company of California, and a discussion of stray earth currents.

Thursday night there will be a banquet.

Foley to Preside

Friday morning will start off with a breakfast similar to that held Thursday morning, with the third technical session starting at 9 a. m. under chairmanship of L. L. Foley. Papers presented at this session will include: "Steady and Unsteady Flow of Oil-Gas Mixtures Through Unconsolidated Sand," by L. S. Reid and R. L. Huntington of the University of Oklahoma; "Abnormal Pressures in Reservoirs," by Paul Weaver; "A Probable Cause of Blowouts," by H. C. Spoor, Jr., United Production Corporation; "Gel Formation in Mud," by Charles E. Reed, Massachusetts Institute of Technology; "Shear Strength of Muds," by Benjamin C. Craft and Benjamin I. Routh, Louisiana State University; and "Intensive Mud Weighting," by H. E. Gross, University of Oklahoma.

The fourth session will get started at 1:30 p. m. October 8 under chairmanship of T. V. Moore, Humble Oil & Refining Company, Houston. The session will start off with presentation of "Stage Separation of Crude Oil-Gas Mixtures," by G. O. Kimmel and Huntington of the University of Oklahoma. This will be followed by "Behavior of Contents of High Pressure Reservoirs," by Stephenson; "Use of Equilibrium Constants in Production Engineering," by D. L. Katz, University of Michigan; "Calculation of Equilibrium in Hydrocarbon Mixtures," by S. E. Buckley, Humble Oil & Refining Company; "Desalting of Crude Oil," by Gustav Egloff and E. V. Nelson, Universal Oil Products Company, and "Oil Treating," by S. F. Mauney, Jr., Carter Oil Company.

October 9 (Saturday) will be devoted to a field trip to points of interest in Oklahoma City and Moore fields and the School of Petroleum Engineering laboratories at the university at Norman.

California's taxable gasoline 154,946,667 gallons in Aug.

Los Angeles.—Total gallonage of taxable gasoline moved in August in California reached 154,946,667 gallons, bringing a revenue of $4,648,400 to the state of California.

The major company net taxable gallonage follows:

Standard Oil Company 29,389,788 gallons; Shell Oil Company 19,030,375; Union Oil Company 14,773,346; Tide Water Associated 14,186,066; General Petroleum Corporation 13,088,350; Richfield Oil Corporation 11,776,752; Texas Company 8,697,507.

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Production and Use of Oil Since Early Times

By RUDOLF SEIDEN, C. E.

OIL is one of the few raw materials known and used since early times. But we must honestly admit that even today we cannot definitely fix the origin of oil. Therefore, we should not be surprised to find it a subject of superstitious conjecture in the dark ages.

People who saw oil for the first time some thousands of years ago may have regarded it as material of no apparent value, or they may have avoided it because of the characteristic shyness primitive people feel for that which they cannot explain. After a time, when the properties of the oil came to be known, it lost its enigma, and new applications were sought for it. Now, its consumption is rivaled only by coal.

The Fire Worshipers

The earliest inhabitants of the Caspian Sea region, especially in the vicinity of Baku, were well acquainted with oil and gas. Because these primitive people could find no explanation for the phenomena they regarded them as something supernatural; indeed, they developed in this region a unique "oil-religion." The so-called fire worshipers identified their deity in the flaming oil and gas occurrences. Such fires arose about these deposits and have continued to break out again and again since early times.

The "Eternal Fire"

The thousand-year-burning "eternal fire" of Baku was ignited about 900 A.D. Still very famous not long ago was the temple and monastery of the fire worshipers of Ssurachany, near Baku. In the middle of the five-cornered monastery structure arose a temple of stone columns, surmounted by a low dome. The "eternal fire" (a well of burning gas fed by many pipes!) blazed within the temple and above the dome. The priests of the temple were mostly Brahman-Indian fire worshipers. The fire, which they declared holy, was lighted for the last time about 50 years ago. Today, the well of flame is filled with earth and stone, and the sect of fire worshipers is no more.

Traveling in Russia, six years ago, I found the "eternal fire" imparting its holy heat to the lime-kilns and shedding its holy light in the many workshops of the region. Walking through the streets of Ssurachany at night one may still see the intermittent, weirdly colored flashing of light across the heavens which testifies to the abundance of gas in this region.

Zoroaster's Doctrine

The doctrine of the holy fire was initiated by Zoroaster, an Iranian prophet, who adopted it from the Iranian sun worshipers about 1000 years B. C.

Oil, also known early in India, was called "Indian fire." There it was used as war material and came to be greatly feared by the enemies. The manufacturing of this fire was a guarded secret; it was only known that it could be produced from oil when needed. Only persons connected with the government were allowed to produce and to use oil. It was, so to speak, one of the first state monopolies.

In the Bible, more than 200 references mention oil and asphalt. The "Burning thornbush" can be explained as an oil fire. In the Second Book of the Maccabees (Chapter 1), it is stated: "When the Jews were led into Persia they found pits in which the priests concealed the sacred fire they required for their sacrifices." After many years their descendants, contemporaries of the Prophet Nehemiah, searched for the hidden fire. They found a "thick water" which when poured upon the hot sacrificial stone, burst into flames.

Pits Declared Holy

The Jews declared the pits holy and gave them the term "nephtar" or "nephtoj," from which it is thought the term "naphtha" is derived. The Prophet Elisha is recorded as saying to a widow who possessed an abundance of oil, "Go sell the oil and pay thy debts and live." And Job said, "The rock poured me out rivers of oil." Noah finally is said to have rendered his ark impervious to the floods of waters by giving it two coats of pitch within and without.

Some writers maintain the word "naphtha" not of Hebrew origin but derived from the Persian "nafata," meaning "to exude." Other synonyms for "oil" are: maltha, naphtha (Greek); petroleum -petra, stone, and oleum, oil (Latin); bitume visquex, bitume glutineu, piox minerale, and minerale graisse (early French); huile de naphthe, petrole brut (modern French); Rohnaphtha, Erdol, Rohol (German); ropa, ropianka (Polish); pacura, petrol brut (Roumanian); yenan (Burnese); sekinoyn (Japanese); sekischitza (Chinese); neft (Russian).

Going back a few thousand years, oil and oil-tar were used as building materials too; for instance: to build the palaces of Nineveh and the Temple of Solomon.

It is well known that oil and oil products were used by Egyptians in their efficient embalming process, as indicated by mummies many thousand years old, in the Cairo Museum and in the pyramids.

Used as Naval Weapon

The ancient Greeks are famous for their use of the "liquid fire which floats on water." With it they sank the vessels of war when Igor attacked Constantinople. The Roman Pliny and the Greek Herodotus wrote of the oil springs of Zante, an island off the coast of Greece. Pliny also states that "Sicilian oil," secured near Agrigentum in the island of Sicily, was burned in the lamps of the temple of Jupiter.

A Latin manuscript, "Hortus Santatis," drawn up at Mainz, Germany, in the year 1491, states that petroleum is "the oil of rocks found in the vicinity of volcanies." Oil was obtained in Germany for the first time about the year 1400. Monks of the monastery Tegernsee in Bavaria collected and investigated it. They used it freely as a medicine and called it "Quirinus oil." (Quirinus is the mythological name given Romulus, founder of Rome.) The Allegheny Indians of

Surface Indications

Mexico's federal engineers were examining October 1 reportedly good oil and gas surface indications that were discovered by farmers working common public lands in La Sandia Township, near Nuevo Laredo, just across the border from Laredo, Texas.

North America also used an oil, "Seneca oil," as a remedy.

Chinese Had First Rig

Oil was obtained by the pit method for the first time in Braunschweig, Germany, about 1800; but the production was exceedingly small. In Pechelbronn, Alsace, oil was produced a little later by the same method.

Drilling operations in the western hemisphere did not begin until 1859, when Col. E. L. Drake drilled the first well at Titusville, Pennsylvania. To be sure, some oil was obtained earlier from wells in Virginia, originally drilled for salt, but Drake is given the credit of drilling for the first time specifically for oil. Early Chinese manuscripts, however, prove convincingly that the first well-drilling rigs were operated successfully in China centuries before the Christian era.

The first stimulation of the oil industry occurred about the middle of the nineteenth century, when it was learned how to extract a suitable lamp-oil from petroleum. At first the oils of Baku and Galicia (at that time a possession of Austria-Hungary), and later the oil of interior India (especially that of Rangoon) were used. The second general stimulation of the industry came with the first commercial production of oil in America in 1859.

Battleview To Be Active

New tests drawn by wildcat producer will drill farther down structure; Turner Valley extended.

RAPID development of Battleview structure, 23 miles northeast of Wainwright, Alberta, Canada, is indicated with announcement of three tests to be started immediately.

Pacalta Oils, Limited, expects to spud in within three weeks. South End Petroleums, which has a producing well on the west flank of South Turner Valley, has ordered equipment and should have its test underway before the end of the month. Battleview Oils is making final arrangements for No. 2.

Original estimates of the Battleview Oil's wildcat's gas flow, which ranged as high as 50,000,000 cubic feet, have not been revised. After most of the flow had been cased off, the well still gauged 20,000,000 cubic feet. Oil production is estimated at 1000 barrels daily which, however, can not be taken without sacrifice of a very large gas flow. It was decided to preserve the gas, for the present at least, and drill the new tests lower on structure where the pressure should be less. The wildcat is bottomed at 1894 feet, a depth to which a well can be completed for approximately $15,000. Location is Section 32, Township 47, 5-w4.

Half Mile Extension South

In Turner Valley field, Brown Oil Corporation's No. 2 and Mercury Oils No. 8 had stopped drilling and were being cleared of rotary fluid as the week closed. The Brown well, located on Legal Subdivision 8, Section 20, Township 18, 2-w5, stopped at 7002 feet, 475 feet in the lime. The Mercury test, Legal Subdivision 3, Section 4, Township 19, 2-w5, discontinued at 6023 feet, 523 feet in the Madison. The Brown well is in the southerly area of Turner Valley's big producers, while the Mercury test is one of the more northerly wells in the crude pool.

Brown Oil Corporation's No. 1 reached the completion stage early in the week with estimated initial production of 400 barrels daily. Its yield is being retarded by lack of gas pressure. The test, on Legal Subdivision 16, Section 16 Township 18, 2-w5, provides a half mile southerly extension to the southwest flank of the valley.

To Drill South of River

Cellar for the first test to be made south of the Highwood River on the Turner Valley structure has been completed. It will be drilled by Midroyal Oils, Limited, on Legal Subdivision 3, Section 9, Township 18, 2-w5, half a mile south and slightly west of National Petroleum Corporation's No. 2. Russell V. Johnson, consulting geologist whose determination of Merland Oil Company of Canada, Limited's location over five years ago made Alberta oil history, was among the first to report favorably on the acreage south of the river. The recent development trend has been on the west flank, rather than to the south.

Commoil, Limited, had to go deeper than any test yet drilled in Turner Valley to find the lime, which was encountered last week at 7000 feet. Drilling was continued to 7020 feet where casing was being run as the week closed. A number of companies have holdings in the vicinity. The test is the farthest west of any on the flank structure.

Going to 8000 Feet

In the Flathead Valley of British Columbia, Columbia Oils, Ltd., is preparing to resume at 5800 feet. Rotary equipment will be used to deepen to 8000 feet, if necessary. The vicinity contains many oil seepages and gas vents. Among petroleum engineers who have given the area their approval are Dr. G. S. Hume, Canadian department of mines and resources geologist, and Dr. A. A. Ollsen, New York.

Formations drilled through by the Columbia well thus far are all in the pre-Cambrian overthrust, and the drill appears to be bottomed in what is known locally as the Waterton formation, the lowest member of the pre-Cambrian in this area and believed to immediately overlie the Palaeozoic limestones. Showings of oil, each of which has been accompanied by a flow of gas, were encountered at 134, 2370, 3119, 3465, 3776, 4100, between 4591 and 4800 feet, at 5220 feet and between 5600 and 5800 feet, it is reported.

Other Canadian Wildcats

The following reports were obtained from other West Canadian structures: On Birch Ridge, Elbow Oils Company, drilling at 5220 feet; on Calling Valley, Anglo-Indian Oils Corporation, building derrick; on Cardston, Franco Oils, cleaning at 4580 feet; on Clearwater, Western Development Company, waiting at 142 feet; on Coutts, Home Oil Company's Coutts No. 1, drilling at 3100 feet; on Del Bonita, Lyons-McIntyre, drilling at 420 feet; on Duncan, Spindletop Oils, casing at 1600 feet; on High River-Aldersyde, Ranchmen's Gas & Oil Company, waiting at 7225 feet; on Highwood - Sinclair, Green Valley Petroleums' Banner, drilling at 3405 feet; South End Petroleums, cementing at 5500 feet; on Hunter Valley, Hunter Valley Oil Company, drilling at 8252 feet; on Kootenay Dome, Roxana Petroleums, drilling at 3365 feet; on Lethbridge, Lethbridge Petroleums, cementing at 2198 feet; on Moose Dome, Moose Oils No. 2, testing at 1553 feet; on New Valley, New Valley Oil Company, fishing at 8462 feet; on Pincher Creek, Weymarn Petroleums No. 2, giving acid treatment at 6432 feet; on Ribstone, Dina Oil & Refining Company's No. 4, drilling at 1025 feet; London-Ribstone Petroleums' No. 2, testing; on Steveville, Anaconda Oil Company, fishing at 615 feet; on Taber, Plains Petroleum Corporation's No. 2, drilling at 2700 feet; No. 3, drilling at 2780 feet; Amerada Oils, hauling material to location; on Wainwright, Altoba Oils, building derrick; on Watson, Mar Jon Oil Company's No. 3, changing from cable tools to rotary equipment at 5520 feet; Mar Jon-Maxmont Syndicate, drilling with no depth reported.

SPECULATORS HIT

Object of regulation also to obtain geological data

The Alberta goverment last week approved an order-in-council designed to eliminate speculators from the oil and gas market and to obtain more authoritative information on the geological structure of oil fields in the West Canadian province.

The new regulations provide that companies or individuals desiring to prospect, meanwhile reserving petroleum and natural gas rights, make applications for areas with a minimum of 10,000 acres and a maximum of 50,000 acres. A fee of 5 cents an acre must be paid when the application is filed, along with evidence that the geological information desired has not been hitherto available.

Within 45 days the applicant must carry out geological experiments and submit a preliminary report to the government. Another 45 days is allowed for completion of the survey. If the applicant can show the time has not been sufficient, he may be granted another three months, at the end of which time all documentary evidence must be filed with provincial authorities.

Old Braman pool extended by Wilcox sand well.

* * *

North Lucien receives southeast extension.

Tulsa.—Southwest extension of the old Braman pool of Kay County, northern Oklahoma, occurred last week. Honors go to E. J. Shaffer et al's Hunchild 1, SWc 8-28n-1w, which was reported making 15 to 18 barrels of oil per hour with the hole bridged. The test drilled into the Wilcox sand at 3514 feet and went ahead to 3533 feet, where it encountered gas which blew tools up the hole, forming the bridge. It was estimated making 20,000,000 cubic feet of gas daily. It is about one mile south of the old producing area.

New work for the area was immediately started by Shell Petroleum Corporation, which made location for H. M. Horne 1, SEc NW 8-28n-1w, and L. H. Wentz made location for Andrews 3, SWc NE 8-28n-1w.

The Braman pool was opened by Comar Oil Company, which drilled a well in Section 21-28n-1w, producing from 2071 feet in the Endicott zone and made an initial production of about 1800 barrels of oil. It started an extensive drilling campaign on the Braman townsite. There is some Wilcox production in the pool, but it chiefly produces from the Stalnaker sand at 2300 feet; Layton sand at 2800 feet and a few producers in the Siliceous lime from 3300 to 3400 feet.

Watch Lincoln Test

Developments were being closely watched at Continental Oil Company et al's Morris Community 1, NWc SE 7-15n-5e, northwest of Kendrick in Lincoln County, which may open the next oil pool for Oklahoma. Last minute reports stated the well was coring at 4509 feet in sandy dolomite. Earlier in the week, the well tested and showed for water. The well had top of the Viola lime at 4405 feet and cored from 4440 to 4450 feet. Recovery consisted of 1½ feet of dry dolomitic lime; 1½ feet of saturated dolomitic lime and five feet of dolomite, saturated in parts. Another core from 4460 to 4470 feet had an 8½-foot recovery of sand and dolomite somewhat stained with oil and showed gas in the bottom four feet.

Wilcox sand was topped at 4462 feet, and cored from 4470 to 4475 feet for a five-foot recovery of brown sand stained with oil. It was here that the test with an electrical well surveying instrument revealed about 75 feet of slightly salty mud and one foot of oil. A short section of Sylvan shale was found between 4340 and 4405 feet, being about 65 feet thick. Nearly 100 feet of the formation was found in a dry hole at NWc 7-15n-5e. Community 1 had top of the second Wilcox sand at 4507 feet.

North Lucien field extended southeast

Oklahoma City.—Best news in the Oklahoma City sector was that the North Lucien pool of Noble County had been extended. Extension well was Seaboard Western Oil Company's Guthrie 1, NWc NE 6-20n-2w, which took a drill stem test in the Wilcox sand at 5435 feet and showed 360 feet of clear oil in the hole. It had previously shown saturation in a core from 5422 to 5435 feet in the Wilcox sand, top of which was found at 5425 feet. Saturation was also noted in the basal dolomite. There are only 3 small producers in the field. Guthrie 1 is southeast of these and on a 160-acre farmout tract.

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OKLAHOMA

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARTER COUNTY—		
Wasteka Drlg. Co., Burton 1A, ne nw nw 31-1s-2w	6	2552
Ames Drlg. Co., McCrory 1, ne nw nw 5-1s-3w (pb 3350)	102	3521
Carlos Wagner, Eva Brady 1, se nw nw 4-2s-2w (otd 350)	*	1728
Jones Bros. & Gray, Humble-Dillard 5, sw se ne 27-4s-2w (otd 2290)	6	3399
Wasteka Drlg. Co,. Burton 2, se nw nw 31-1s-2w	8	2622
Roy M. Johnson, Davis 20, se se nw 6-4s-3w	*	1204
Kewanee Oil & Gas, Hickman-Willis 4, s½ nw se se 6-4s-3w (otd 1137)	4	1128
COMANCHE COUNTY—		
Shaw & Andrews, Rowell 1, nw se se 21-2n-10w	2	1004
Cox & Hamon, Tussy 1, ne ne se 31-1n-3w	231	3500
CREEK COUNTY—		
L. B. Jackson, Alberta 1, ne ne nw 25-18n-9e	180	2975
Gregg Sawyer, Jackson 3, nw nw se 14-19n-9e	*	2217
J. P. Brady & Sons, Duncan 5, se nw ne 19-19n-9e	5	2472
Gregg Sawyer, Adams 1, e½ ne ne 23-19n-9e	¶1.4	1275
Curtis Oil Co., Smith 1, sw sw ne 24-19n-9e	*	1472
GRANT COUNTY—		
Carter et al, Crissman 1, cw½ sw nw 16-25n-3w	756	5410
HUGHES COUNTY—		
H. H. Ellis, Tiger 1, nw se sw 29-6n-8e (pb 697)	¶2½	734
Mervett, Breeding 1, nw nw ne 12-7n-8e (pb 1100)	*	2935
A. Michelson et al, Lucis 1, nw nw se 29-7n-8e	*	1188
LINCOLN COUNTY—		
Skelly Oil Co., Sporn 3 (west) nw nw sw 21-17n-3e	25	4628
Stanolind & Amerada, Crawford 3, nw ne se 35-15n-2e	882	5136
LOGAN COUNTY—		
Champlin Ref. Co., Pfeiffer 7, sw nw nw 4-19n-2w	3085	5043
Pfeiffer 6, nw nw nw 4-19n-2w	3206	5050
Sinclair Prairie, Ford 1, se ne se 12-17n-1w	360	5087
NOBLE COUNTY—		
Sinclair Prairie, Glockler 2, nw ne se 32-20n-2w	2815	5125
Continental Oil Co., Conway 1 "A", se ne sw 16-23n-2w	1062	4281
Lincoln Oil Co., O'Neil 2, nw nw se 16-23n-2w	2892	4213
Continental, Conway 8, nw ne nw 21-23n-2w	4550	4310
OKLAHOMA COUNTY—		
Big Chief Oil Co., Lincoln 1, sw sw se 27-12n-3w	325	6537
Magnolia, School Land 2, se ne ne 36-14n-4w (pb 6400)	30	6732
OSAGE COUNTY—		
Lewis Prod. Co., 8, se nw ne 33-24n-7e	233	2653
W. G. Ingersoll 8, se se ne sw 14-24n-9e	8	2091
I. T. I. O., 350-2, cs½ se sw sw 27-25n-8e (otd 1025)	*	2418
Cecil Judy, 8, ne nw nw 12-27n-10w	2	1273
PONTOTOC COUNTY—		
Magnolia, Craddock 2, sw se se 24-2n-6e	2188	4080
Moore, Smith "B" 10, se se se 25-2n-6e	1108	3398
Magnolia, Chambers 2, ne sw nw 36-2n-6e	116	4065
Burris "A" 18, sw sw nw 27-2n-7e	106	2510
Shell, McKinley 3, sw se ne 23-2n-7e	1059	3955
Skelly, Park College 27, ne nw ne 28-2n-7e	140	3675
Park College 28, se sw ne 28-2n-7e	108	2515
Moore, Thompson A. 1, nw se se 23-2n-7e	112	1850
POTTAWATOMIE COUNTY—		
J. F. Smith, Brandenberg 1, sw ne sw 3-7n-4e (pb 4205) (otd 3922)	29	4273
Gulf, Lula 1, sw nw nw 13-7n-4e	422	3153
Atlantic, Burke 3, se se ne 16-7n-4e (pb 3225)	*	4252
Magnolia, Jones "A" 2, nw se ne 18-7n-4e	120	3987
SEMINOLE COUNTY—		
Lynch, Doner 2, se sw ne 24-5n-5e	18	2772
Malernee & Shelton, W. E. Huddleston 1, se sw ne 32-7n-6e	520	2995
STEPHENS COUNTY—		
Carter et al, Harley 1, cne ne 24-2s-4w	2769	8157
Green et al, Green 8, ne ne se 27-1s-5w	2	765
Helmerich & Payne, W. Wade "A" 1, ne se nw 12-1n-5w (pb 3645)	¶10	3746
1A Graham, sw sw ne 12-1n-5w	*	325

*Failures; †Junked; ¶Million cu. ft. gas.

Old Shallow Producing Belt of Oklahoma-Kansas Active

IT IS not calculated to cause an abrupt climb of the nation's crude oil production curve, still, by and large as well as comparatively speaking, there is a lot of drilling going on in the old shallow well belt of the Mid-Continent area. The by and large comes into it because the drilling is taking place from Muskogee, Oklahoma, northward to Garnett, Kansas. The comparative element of it is that a few years back the shallow belt was in the doldrums, with its wells being plugged and leases being abandoned.

At that time trucks were going out of the shallow belt, headed for the junk yard with pipe and equipment of no further use or headed for other fields with pipe and equipment that could give longer service. The course is reversed today, for the loaded trucks are going into the shallow belt, often with used pipe from other fields and frequently with new pipe and pumping equipment.

500 Rigs Active

If scouts covered it today as they did after the turn of the century their reports would repeat the names—Coody's Bluff, Lenepah, Alluwe, Delaware, Coffeyville, Cherryvale, Chanute, Iola and Neodesha—a few of the fields which transferred oil production west of the Mississippi. The sands are from 250 to 1500 feet, deep drilling in that day when 2000 feet was looked upon as a possibility but a questionable venture, since pumping would be impossible at the depth. Today the area is not scouted except for completions but those active in the work estimate that 500 rigs are pounding away at shallow digging.

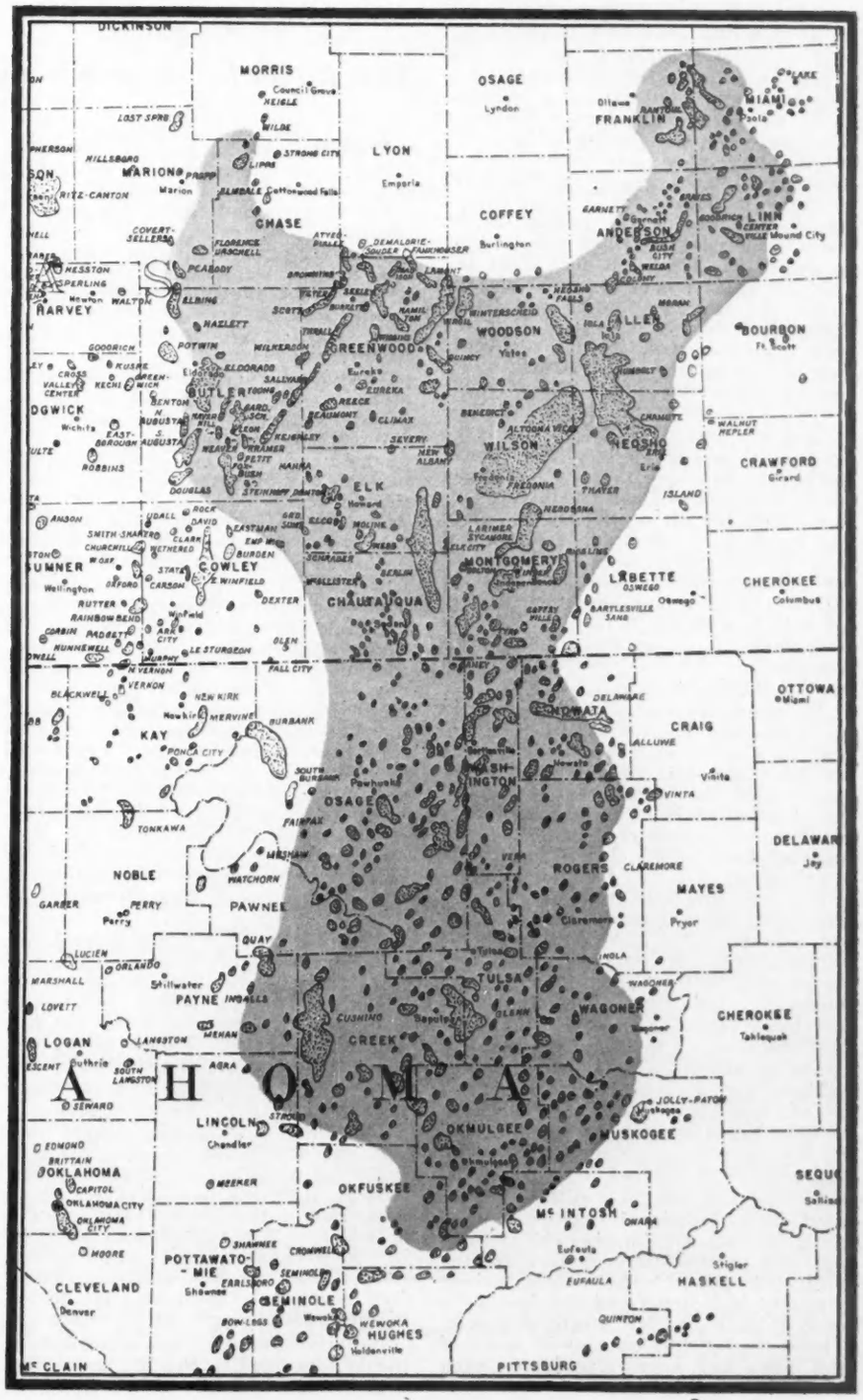
Major cause of the drilling revival is adoption of water flooding, as this involves complete redrilling of a property for secondary recovery. In part it is due success in finding some shallow sand or deeper sand productive. Then there are the instances of recording an extension for a field more than 25 years old. The area also has its wildcatting, which may involve moving just beyond hearing distance from a veteran gas engine at a central power and gambling a few thousand dollars against finding another oil field. The Airport pool near Tulsa is such an example. Now the town council at Sapulpa has passed an ordinance that permits drilling within its confines. Also included in the activity is clean out work, for the price of oil is now such that producers find it profitable to rehabilitate wells.

No Proration of Output

The area is not bothered by potentials or daily well reports to proration authorities. These wells get the limit of their ability to produce. That it means something in output can be appreciated by the fact that the unprorated fields of Oklahoma drew an increase of 3900 barrels daily for July and the shallow belt is part of this.

The shallow belt is making neither headlines nor millionaires. Going in with a shoe string (one tip mashed under a bunk house boat) and coming out with a million is not the order of the day. The area did that in its heyday. Neither is it strictly a poor boy area. for the major oil companies are reconditioning, water flooding and re-

★ ★



Long regarded as a "has been" area, the old shallow producing district of northeast Oklahoma and southeast Kansas, which for 25 years was one of the principal sources of oil in the Mid-Continent, is back into the limelight today with 500 rigs operating in the shaded area of the map.

viving production on properties of the type they were selling five years ago. It was then that the smaller concerns and a few individuals added to shallow belt holdings and awaited the day of profit from the production. Capital under such direction is to a large extent responsible for swelling the output of the stripper well belt.

Mostly Cable Rigs

Revival in the shallow belt has revived cable tool drilling, on a cheaper and quicker basis. It's a business with lowest cost the best policy. Drilling time seldom requires more than a week. The lighter the equipment the quicker the move. Both producers and drilling contractors have made adaptations and changes to cut the cost and cut the time.

At that the shallow belt rig is not the ludicrous contraption, as described by wags who drill them deeper. It is not so simple as taking a window weight for a bit, the clothes line for a cable, a bored well bucket for a bailer, a dug well pulley for a crown block, a discarded telephone pole for the mast, a charcoal burner for a forge and a motorcycle engine for power. If the farm type tractor drives the walking beam, that is because it does a cheaper job and because it in turn will haul the rig to the next location. If an automobile engine from a junk yard is on the job, that is because it does a cheaper job and requires little truck space when moving day comes.

The way of drilling in the shallow belt is a tribute to men who must take a few thousand dollars and invest profitably, knowing there is not going to be a period of flush production sufficient to pay all costs. All too often the result is 20 barrels or less and that kind of production does not look well on a page opposite a drilling cost of $25,000. It is a play of dimes instead of dollars with the percentage pay off sufficient to maintain good credit standing at the local bank and down at the supply store.

Maintaining credit with the dealer in used pipe also has its reward, for there are times when what he has will serve as good purpose as new equipment. This is no classification of junk yard for the shallow belt. There is too much fresh paint, too many thousand feet of new sucker rods and pull rods, too much of all manner of new equipment going into the wells to warrant holding used material out as the practice. As the supply of used equipment diminishes, the requirement for new material will increase, because there is nothing to indicate a lessening of the development. It is an area being worked over.

Casing practice calls for surface pipe, seldom more than three joints, usually 8-inch size. The next string goes to the sand depth and a string of tubing leaves the hole ready for rods, pump and surface equipment.

The central power is still so widely used that individual pumping units draw attention. For individual well pumping small electric motors are the preferred power. These installations are used in instances of too few wells on a lease to justify a central power. The town lot development in some of the cities and towns has forced such leases into production.

KANSAS FIELDS

New pool opened northwest of Bemis.

* * *

Three other Ellis County wildcats show.

* * *

Test in Barber County may be discovery.

Wichita.—Drilling success in Kansas last week was focused on Ellis County, where one new pool opened and three other wildcats had encouraging shows. Meanwhile, Sedgwick County's second commercial gas producer was scheduled to drill deeper. In Barber County, a test had a showing of oil although located in a gas area opened two years ago. Second producer for Pawnee County was preparing to complete, and extensions were reported from several areas.

Earl Wakefield et al's Burnett 1, NWc NE 1-11s-18w, 4 miles northwest of the Bemis pool in Ellis County, apparently has opened a new pool. It had the Siliceous lime at 3570 feet and drilled to 3571 feet where it swabbed 7 to 8 barrels of oil per hour. Drilled deeper to 3572 feet, the hole filled 2500 feet with oil in 45 minutes. Total fillup was 2800 feet with 29 gravity oil.

Buffalo Oil Company and Norbla Oil Company's Philip 1, NEc 18-14s-16w, continues indications it may open a new pool for the county southeast of Hays. Plugged back from 3460 feet in the Siliceous to 3225 feet in the Kansas City lime, casing was perforated and the well acidized. Commercial production was indicated when the hole filled 1400 feet with oil after being unloaded. It also made 50 barrels of oil in 1 hour swabbing, and later swabbed 390 barrels of 18.9 gravity oil in 9 hours. It is 3 miles southeast of production in the Victoria pool.

Brunson Drilling Company and Glimac Oil Company's Weisner 1, SE SW SE 31-13s-17w, 4 miles northeast of the Yocemento pool, drilled to 3607 feet in the Siliceous lime and filled 250 feet with oil overnight. Six-inch casing was run and the well acidized with 500 gallons. It then swabbed 2 to 3 barrels of oil per hour. It will be reacidized.

The third showing for the county was Bay Petroleum Company's Curtis 1, Section 1-13s-18w, north of the Ubert pool in northern part of the county. After finding the Kansas City lime dry at 3360 feet, it was drilled to 3606 feet in the Siliceous lime for good saturation. Top of the Siliceous was at 3599 feet. Seven-inch casing was set on top of the lime so a test can be made.

A Barber County test was headed for the Wilcox sand in the Aetna gas district last week. It was W. I. Southern et al's Davis 3, SEc NE 24-34s-15w, which had a show of oil in the Viola lime before deciding to carry ahead to the Wilcox. The oil and some water was found at 5368 feet in the lime. Shot with 70 quarts, the well responded with a somewhat heavier show of oil. There are two gassers in the area, each making approximately 5,000,000 cubic feet of gas.

Bloomer Extended

One mile southeast of the Bloomer pool but in Rice County, Gulf Oil Corporation has a new producer at Stout 1, NEc 6-18s-10w, which filled 2000 feet with oil in 2 hours while drilling from 2969 to 2977 feet in the Kansas City lime. It had a hole full of oil at 2984 feet, but little gas. The bailer was stuck in the hole when last reported. Production in the Bloomer pool as well as the Stumps pool, which is 2 miles east of the new well, is from the Siliceous lime.

One mile east of production in the Chase pool of Rice County, Skiles et al's Campbell 1, SEc NE 28-19s-9w, had top of the Lansing lime at 2860 feet and set 7-inch casing at 2953 feet. The pay was between 2950 and 2956 feet, and the well filled 1500 feet with oil in 3 hours. After being swabbed to the bottom, the hole filled 220 feet with oil in 45 minutes.

Preparations were under way at Shell Petroleum Corporation's Peterman 1, SE NE SE 13-16s-14w, to test production. It is located 1½ miles southwest of production in the Barton County extension of the Trapp pool. The Siliceous lime was cored from 3361 to 3366 feet and recovery showed the formation hard and gray with spotted oil stains. Casing was run to the top of the lime at 3341 feet, and completion will be made after cement has set.

Coralena Extension

The Coralena pool of Russell County was given a northeast extension when Skelly Oil Company's Rein 3, SE NE SW 8-15s-13w, made a potential of 2383 barrels of oil on pump. Top of the Siliceous lime was had at 3169 feet and drilled to 3172 feet where it pumped 367 barrels of oil natural in 4 hours. Skelly holds 480 acres in the block. Carter Oil Company staked location for a test at NE SE SW 8-15s-13w.

The second commercial gas producer

for Sedgwick County in September was completed 9 miles east of Wichita last week when National Refining Company's Fee 1, SE NE SE 36-27s-2e, made estimated 5,500,000 cubic feet of gas from between 2005 and 2016 feet in the Lansing lime. It will deepen, however. Top of the formation was found at 1968 feet after a small show of gas was passed higher in the hole. Last commercial producer for the county was located 6 miles southwest at W. G. Talbott and Harwood Oil Company's Downs Estate 1, which was making about 8,000,000 cubic feet of gas from 2229 feet in the Stalnaker sand.

Stanolind Oil & Gas Company, Amerada Petroleum Corporation et al's Belt 1, NEc SW 13-20s-16w, a wildcat 8 miles northeast of Larned in Pawnee County, was estimated making 500 barrels of oil and 27,000,000 cubic feet of gas daily from the Siliceous lime at 3832 feet. First gas was found at 3825 feet. Top of the Siliceous lime was high at 3764 feet. Another gas flow was encountered at 3788 feet and increased at 3809 feet. The test is ¾ mile northeast of Pawnee Rock discovery well and only producer for the county. It was shut in for tankage.

Two miles northeast of the Ainsworth pool in Barton County, Stanolind Oil & Gas Company's Morrison 1-B, SEc NW 26-16s-13w, recovered a saturated core from the Siliceous lime, topped at 3399 feet and carried to 3403 feet. Casing was being run before drilling in.

Lloyd, Frost & Study's Elder 1, NWc NE 4-32s-3e, in the Weathered pool of Cowley County, came in for production from the Siliceous lime at 3255 feet. It made 553 barrels of oil during the first 4 hours of an 8-hour test. It is an east offset to the Kansas City lime discovery well for the area, recently completed for 720 barrels of oil.

Stanolind Oil & Gas Company was preparing to acidize at Deal 1, NWc NE 35-16s-13w, southeast diagonal offset to the discovery producer in the Studer pool of Barton County. The hole filled 600 feet with oil from the Siliceous lime at 3410 feet.

The Texas Company's Deines 1, SWc NW 19-13s-14w, ½ mile north of production in the Atherton pool of Russell County, was completed for 330 barrels of oil from the Siliceous lime at 3363 feet. The production followed acidization.

Cities Service Oil Company's Rogg 1, SEc NE 27-14s-13w, in the Letsch pool, was completed for a potential of 2874 barrels of oil. It made 464 barrels of oil the first 4 hours and 529 barrels the following 4 hours.

The Texas Company's Schartz 6, SEc 33-19s-10w, in the Schartz extension of the Silica pool of Rice County, was completed for 2519 barrels of oil from the Siliceous lime at 3321 feet following acidization.

To auction 8132 acres of Indian lands October 14

Muskogee.—A total of 8132 acres of restricted allotted Indian lands in Oklahoma will be offered for sale here on October 14, beginning at 10 a.m. The 94 tracts included are located in 18 counties. Announcement was made by A. M. Landman, superintendent for the Five Civilized Tribes.

KANSAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
BARTON COUNTY—		
I. T. I. O., Peter 5, cs½ se nw 24-20s-11w	1159	3258
Shell, Kroutwarst 1, se ne nw 10-17s-11w	2305	3304
Sinclair Prairie, Hoffman 1, se se ne 7-16s-13w	994	3377
Polk-Fortson, Meyer 2, sw nw se 16-16s-12w	455	3347
Price et al, Craft 2, nw nw ne 10-17s-11w	2369	3281
Stanolind, Kowalsky 2, nw sw ne 11-20s-11w	2170	3287
W. M. Panning 2, nw nw se 2-20s-11w	1952	3292
C. Schmidt 1, sw sw se 35-19s-11w	271	3310
Vickers Pet. Co., Lucas 1, nw nw ne 16-17s-14w	*	3482
BUTLER COUNTY—		
Phillips, O. E. Moore 3, ne nw se 1-25s-3e	53	2683
Vickers, Joseph 4, ne nw nw 2-25s-3e	56	2731
CHAUTAUQUA COUNTY—		
Craft, Lefree 1, se nw ne 8-32s-12e	4	2080
C. C. Edinger, Chance 1, sw sw sw 34-34s-12e	*	1037
COWLEY COUNTY—		
Ryan Consolidated et al, Couch 2, sw se se 13-30s-5e (pb 2859)	2	2859
Carter, Shields 1, sw sw se 19-32s-6e (pb 2230)	193	2240
EDWARDS COUNTY—		
Douglas & Gear, Meade 1, ne ne nw 33-25s-16w	*	4798
ELLIS COUNTY—		
Deep Rock, Baumer 19, ne se nw 27-11s-17w	3370	3542
Margay, Bemis "D" 1, ne ne se 28-11s-17w	1046	3621
Lario, Marshall 5, se se sw 31-17s-11w	2023	3637
Amerada, E. Shutts 2, nw nw ne 6-12s-17w	*	3788
ELK COUNTY—		
Elk Falls O&G, Smay 1, nw nw sw 28-28s-12e	40	840
ELSWORTH COUNTY—		
Equity Nat'l Gas et al, Razac 1, ne ne se 31-15s-10w	*	3270
GREENWOOD COUNTY—		
Superior Oil, Jones 13, se nw se sw 21-23s-13e	*	2106
Sykes et al, Beauchat 5, cnl n½ se 5-24s-12e	*	2271
McGinnis et al, Jobes-Smith 1, nw nw se 10-24s-13e	*	1633
HARVEY COUNTY—		
Palmer et al, Schrag "A" 1, ne nw nw 31-23s-3w	1239	3362
LYON COUNTY—		
Davis & Sorry, Byrd 1, sw sw se 32-21s-11e	25	1913
McPHERSON COUNTY—		
Shaffer et al, Hull Est. 1, ne ne sw 11-20s-3w	*	3074
Continental, Graber 4, ne nw se 29-21s-1w	400	3335
RENO COUNTY—		
Inca Prod. Co., Mueller 1, nw ne sw 30-24s-4w (pb 3381)	15	3400
Stanolind & Amerada, John Moore 3, ne se se 8-26s-4w	1574	4024
RICE COUNTY—		
Continental et al, Sam Ainsworth 6, sw nw ne 25-18s-8w	1747	3223
Continental, Anna Groth 1, sw se sw 32-20s-7w	1996	3337
Gulf, Gossman 2, se sw ne 8-21s-7w	1515	3358
Sinclair Prairie, Bolton 3, sw se sw 31-18s-7w	3247	916
Stanolind, Matilda Panning 6, se sw nw 33-19s-10w	2204	3291
Texas, J. Schartz 6, nw nw se 33-19s-10w	2518	3321
RUSH COUNTY—		
Ohio, Dirks 1, ne ne ne 25-18s-16w	¶9	3566
RUSSELL COUNTY—		
National, Reinhart D-2, nw ne ne 19-14s-14w	1611	3095
A. H. Witt, Fee 4B, ne ne se 3-14s-15w (2900)	2237	3301
Coralena, George Sellens 1A, sw se sw 20-15s-13w	1202	3300
W. I. Southern, L. Sellens "A" 3, se se sw 26-15s-13w (pb 3333)	73	3336
Coralena, H. Sellens 3, sw nw nw 30-15s-13w	2071	3296
Hank Sellens 4, sw ne nw 30-15s-13w	3206	3291
Phillips, Hoffman 15, sw se se 31-15s-13w	3139	3333
Cities Service, Krug "D" 1, sw sw se 24-15s-14w	1104	3331
Mai "A" 3, ne se sw 24-15s-14w	407	3352
Boomhaur 10, se sw ne 25-15s-14w	1833	3325
Boomhaur 11, se nw ne 25-15s-14w	2105	3325
SCOTT COUNTY—		
Atlantic, Phle 2, cnw se 14-20s-33w	920	4653
STAFFORD COUNTY—		
Stanolind, W. Spangenberg 2, sw sw nw 29-22s-11w (pb 3594)	259	3607
Heyen "B" 9, se sw ne 31-22s-11w	*	3729
Atlantic et al, Pounds 2, ce½ w½ ne 27-24s-13w (pb 3640)	*	4149
Shaffer, Spencer 1, nw nw sw 3-25s-14w	*	4415
STEVENS COUNTY—		
Panhandle Eastern, Mason 1, cnw¼ 8-31s-37w	¶3.75	3831
SUMNER COUNTY—		
Sinclair Prairie, Herrick 3, se nw se 15-35s-2e	949	3446
Texas, E. Core 7, sw sw ne 5-32s-1w	*	3758
WOODSON COUNTY—		
Pure Oil Co., Winterscheid 13, ne ne nw 6-24s-14e (otd 1580)	26	1765
Saco, Klick 5, se sw sw 20-25s-14e	75	1415
Sheedy et al, Fulhoge "A" 2, nw sw sw 27-25s-14e (pb 1495)	15	1634

*Failures; †Junked; ¶Million cu. ft. gas.

Floor men of Champlin Refining Company on a rod job in the Mansion area of the Oklahoma City field. From left to right, Jack Fulton, Huber Baker, G. O. Davenport with C. D. Stark, tractor driver. With this crew to "Pick 'em out 'en put 'em back," the rod job requires a minimum of time. Sand conditions in the field place unusual demands upon all manner of pumping equipment and adds to the usual number of rod and tubing jobs. The well is Champlin Refining Company's Robertson 1.

NORTH AND WEST TEXAS

McCamey extensions pave way for much drilling.

* * *

Ordovician search continues in six counties.

San Angelo, Texas.—Series of extensions for the McCamey district, Upton County lime area, attained and in prospect from semi-wildcats in process of completion paves the way for a prolonged drilling program.

Production was extended about 1¾ miles to the south when Mac T. Anderson et al's Cordova Union 1, located 990 feet from the northwest and 1320 feet from the southwest lines of H&TC Section 23, Block 35, tested 10 bailers oil per hour from pay at 2155-60 feet and 2188-2205 feet. It has an elevation of 2533 feet. This outpost will make a commercial pumper after acid.

Broad northwest plunging anticline parallel to older production in the McCamey area that was partially proved last May by R. H. Henderson-Bain Oil Properties' A. J. Herrington 1, Section 4, Block 3½, CCSDRG&NG Ry. Survey, registered two important developments. B. C. Mann and Thomas Drilling Company's E. F. Lyons 1, SW SE NE Section 6, 1½ miles northwest of Herrington 1 and 2¼ miles northeast of old production, showed oil at 2710-15 feet and 2760-2790 feet. It will deepen, then test. Falcone & Smith's E. H. Sherk 1, SW NW SE MK&T Section 15, Block 3, 4000 feet north of production, with two offset 2700-foot dry holes on the south line of the section, pumped 1150 barrels of 30.5 gravity oil initial from saturated lime at 2669 feet. Top of pay was logged at 2633 feet, with an elevation of 3107 feet.

Dan M. Short et al's M. B. Webb 1, NEc S½ NW Section 174, Block E, west central Upton County wildcat and east of the Gulf-McElroy field, failed to record oil or gas shows in drilling to 3065 feet.

8-Well Contract

An 8-well drilling obligation has been assumed by Oil Well Drilling Company as payment for lease on 160-acre semi-proved tract, embracing NW Section 23, Block 44, Harper field, Ector County. Elliott F. Cowden, fee owner, assigned the lease, retaining one-eighth over-riding royalty in addition to the usual royalty. Upon the conclusion of the development program and amortization of costs from production, Cowden will have a 50-50 working interest. L. H. Wentz et al's Paul Moss 1, near C NE Section 28, Block 44, important west extension flowed 866 barrels oil initial after 486-quart nitro shot at 3998-4122 feet, with bailer lodged at 2500 feet. The well is bottomed at 4141 feet, with an elevation of 3088 feet.

Shasta Oil Company's Sands 1, located two miles west by south of the Goldsmith field, is considered eliminated as an extension well, having recorded water increase at 4317-30 feet, but was drilling at 4415 feet. Small amount of free oil and water was bailed at 4300 feet, or 1116 feet sub-sea, indicating that it may be on the edge of production.

Ordovician Search

Prospecting for Ordovician production is underway in six counties, with northeastern Brewster County currently in the limelight. Floyd C. Dodson et al's Texas American Syndicate 1-A, near C NE NE of GH&SA Section 66, Block 10, continues to show gas with trace of oil while reaming to deepen from 6001 feet. Owners collected dry-hole contributions in attaining the above depth, and have financed deepening operations. Reports indicate that this wildcat has penetrated about 17 feet into the Simpson, or middle Ordovician.

Loffland Bros. Company's J. B. Tubb-Gulf 3, 1½ miles east by south of deep production in the Sand Hills field, Crane County, was drilling in Ellenberger lime at 6575 feet. It failed to produce oil or gas with natural flow of water in the upper Ellenberger, topped at 5802 feet. Sinclair Prairie Oil Company et al's Tubb 2, ½ mile east of the biggest Ordovician producer, also was a failure in Ellenberger at 6186-6391 feet. It has plugged back to 5125 feet, and is bailing after perforating casing opposite the regular Permian lime oil horizon. In northwestern Crane County, H. F. Wilcox Oil & Gas Company's M. B. McKnight 1, C SE NW of G&MMB&A Section 9, Block 46, was drilling at 5130 feet, with an elevation of 2773 feet. It is to explore the Ordovician zone.

Potential gauge through tubing was due late last week on The Texas Company's University 1-D, near SW SW NE Section 13, Block 35, Jordan field, Crane County, after scoring a heavy natural flow from the 3500-foot lime. This well hit saturated zone at 3505-27 feet, with an elevation of 2800 feet, and flowed 739 barrels in four hours, including 192 barrels the last 45 minutes. It was deepened under pressure to 3538 feet, and 2½-inch tubing is landed at 3531 feet. Two offset wells required nitro shots to attain flowing production in this horizon.

Sunray Oil Company, Tulsa, has purchased from R. L. York and O. C. Harper operating control of 650 acres, mostly proved for production, and seven wells prorated to 390 barrels daily, in the Foster field, Ector County, for a cash consideration of $350,000. These Midland independents retain one-eighth over-riding royalty interest until the buyer produces sufficient oil to retire the cost of additional wells to be drilled, then the properties will be operated on a 50-50 basis. Harper is a former district geologist for Gulf Oil Corporation, having worked in West Texas during its pioneering stage, and shifted to consulting work some years ago because of impaired health.

Rotan completion reveals largest wells are down dip

Abilene, Texas.—Completion of the eighth flowing producer for Rotan field, Fisher County, reveals that the largest wells are down dip on the structure and on the southwest edge. Montour Production Company's Smith 1, NEc W½ SW of H&TC Ry. Section 172, Block 2, gauged 166, 181 and 296 barrels during the first 3 hours while drilling in with the cable tools, and flowed 208 barrels oil during the last 30 minutes of the test. It is producing from sandy lime at 3551-3559 feet, and is a west offset to the original big well drilled by Lewis Production Company, an affiliated unit. Montour Production Company has staked 8 locations on its 80-acre lease, and has skidded the rig to the west.

To Match Direct Offsets

Sunray Oil Company, purchaser of the Rotan discovery well and block, is proceeding to match direct offsets, having made location for 4 tests, including Robinson 2, SEc 160-acre lease, which is drilling at 2700 feet. British-American Oil Producing Company's M. A. White 1, NWc E½ NW Section 123, about ½ mile south of production, was drilling at 2680 feet, and location is made for an east offset. The company paid $500 per acre, $50 per acre cash, for this 80-acre lease. Consolidated Oil Company and N. H. Martin's Florida 1, about 1¾ miles north of the discovery, was drilling at 2600 feet.

Rotan field has no immediate prospects of obtaining a pipe line carrier for the high gravity oil. Tide Water Associated Oil Company is ferrying the allowable of its two producers through a stub line via the Howard area to connect with Shell Pipe Line Corporation's West Texas-Oklahoma trunk line. Other producers are relying upon tank truck sales to refineries in the district.

Fourth Avoca Well Big

The fourth completion for Avoca lime pool, northeastern Jones County, equaled the spectacular showing of previously completed offsets when Iron Mountain Oil Company and Humble Oil & Refining Company's Jones-Stasney 1, SEc NW Section 196, gauged 287 barrels per hour from Canyon at 3228-41 feet. It has an elevation of 1556 feet. Maracaibo Oil Exploration Corporation's Olander 2, twin location to a producer, failed to produce in the Fry sand at 1455 feet, and has been

abandoned. Outlying tests under way will shortly establish whether Avoca is capable of producing beyond the discovery block.

In the meantime, a market outlet is being provided by Humble Pipe Line Company.

The Texas Railroad Commission has decreed that wells are to be spaced on a 10-acre basis, and well allowables will be based 50-50 on acreage and potential.

Wildcat near Ogden justifies high prices paid for leases

Midland, Texas.—Payment of large cash bonuses for leases on University lands in the Shafter Lake area and to the north of the Ogden field, Andrews County, earlier this year were justified the past week. Gulf Oil Corporation's University 1-G, NEC NW Section 8, Block 14, about 2 miles north of production, is checking about 45 feet higher on structure, and encountered 7,000,000 feet of gas after penetrating the Yates sand zone to 2997 feet. The well blew out twice. Top of anhydrite was logged at 1700 feet, with an elevation of 3208 feet. Gas production in the Yates sand is generally a good omen in the Permian basin, and University 1-G is the first to pick up a big volume in the Ogden area.

Important developments in the north portion of the basin were lacking the past week.

The Gaines County section of the Wasson field is partially marking time, pending completion of Humble Pipe Line Company's outlet. Amon G. Carter et al's Sharp 1, offsetting production, was making a preliminary gauge last week at 4994 feet. Amerada Petroleum Corporation's Armstrong 1, about 4¼ miles west by south of the discovery, is awaiting orders after swabbing 1 barrel oil and 3 barrels water per hour at plugged-back depth of 5043 feet.

TEXAS PANHANDLE

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CARSON COUNTY—		
Cities Service, W. H. Fuqua 6	¶10.2	3131
Magnolia, Fee 30, lse 244	777	3087
Skelly, H. Schafer 87	650	3121
Texoma Nat'l Gas Co., H. Schaefer 6-S	¶80.5	2585
GRAY COUNTY—		
Cities Service, I. B. Hughey 6-B	350	3290
Dolomite Prod. Co., Sailor 4	331	3288
Humble, Merten Bros. 8	448	3279
Kewanee Oil Co., M. S. Arnold 11	971	3260
King Oil Co., Allam 5, sec 127	335	3295
Magnolia, Tom Catlin 3	704	3215
Stanolind, T. B. Cobb 3-A	620	3328
HUTCHINSON COUNTY—		
Cree-Hoover & F. W. Dye, Harvey 1	608	3043
Danube Oil Corp., W. A. Starnes 3	988	3180
Phillips, W. B. Haile 4	510	3105
Dave Rubin et al, Barnhill 1	60	3254
Skelly, E. E. Watkins 8	644	2970
Stanolind, H. C. Pitcher 9-A	608	3133
MOORE COUNTY—		
Shell-Sinclair Prairie, W. B. Munson 1	¶8.6	3240
WHEELER COUNTY—		
F. A. Gillespie & Son, W. M. McMurtry 2	¶16.6	1868

*Failures; †Junked; ¶Million cu. ft. gas.

WEST TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CRANE COUNTY (McCamey)—		
The Texas Co., R. King 32	10	2627
CRANE COUNTY (Sand Hills)—		
Humble, J. B. Tubb 13	2668	4435
ECTOR COUNTY (Foster)—		
Sun, John Kelly 1	255	4346
ECTOR COUNTY (Goldsmith)—		
Cities Service, H. E. Cummins 4-B	287	4250
W. H. Dunning, Jr. Est., C. Scharbauer 4	1566	4225
Humble, W. F. Cowden 6	903	4227
C. Scharbauer 2-C	970	4220
Landreth Prod. Corp., Cummins 2-A	2031	4200
Rogers & Rogers, TP Land Trust 1-A	278	4302
T. P. Coal & Oil, C. Scharbauer 7	1920	4242
ECTOR COUNTY (Harper)—		
L. H. Wentz et al, P. Moss 1	866	4141
ECTOR COUNTY (North Cowden)—		
Cities Service, Blakeney 4-A	390	4244
Mid-Continent Pet. Corp., Blakeney 4	553	4232
Phillips Pet. Co., T. P. Land Trust 2	237	4205
Stanolind, T. B. Roberts 6	1289	4329
Tide Water & Atlantic, Holt 2-C	1050	4317
ECTOR COUNTY (Judkins)—		
The Texas Co., W. E. Connell 17	454	3680
FISHER COUNTY (Rotan-Robinson)—		
Tide Water Associated, E. L. Smith 2	1500	3543
FISHER COUNTY (Royston)—		
Dean Bros. et al, M. E. Herring 5	55	3152
GLASSCOCK COUNTY—		
Eastland Oil Co., O. Chalk-Gulf 5	16	1868
HOCKLEY COUNTY (Slaughter)—		
Stanolind, Alex Slaughter 1	432	4975
HOWARD COUNTY—		
Conoco & Group 1 Oil Corp., Overton 4-A	1007	2490
Illinois Oil Corp., R. Lane 5	961	2816
Superior Oil Corp., D. Roberts 22-E	1487	3021
JONES COUNTY—		
Fain-McGaha Oil Corp., M. M. Minter 1	*	2419
J. H. Wheeler 1	*	2467
Maracaibo Oil Explo. Co.-W. L. Pickens, Olander 2	*	1455
Iron Mountain Oil Co.-Humble, Jones-Stasney 1	6888	3241
MITCHELL COUNTY (Wildcat)—		
Mitchell O&G Co., Z. Morrison 1, sec 36	*	3157
PECOS COUNTY (Torborg)—		
Cardinal Oil Co., Tippett-Kirby 49-E	16	544
P. Childress, Tr., Smith-Sinco 20	5	390
UPTON COUNTY (McCamey)—		
American Liberty Oil Co., J. W. Robbins 1	*	2240
Arnold Oil Co., L. H. Harrell 5	387	2169
Brown-Hancock-Hines Oil Corp., M. L. Baker 2-B	460	2190
A. D. Devore & J. R. Minnich, Burleson-Conoco 7	931	2161
Falcone & Smith, E. H. Sherk 1	1146	2669
Magnolia, E. S. Hughes 1-A	70	2311
J. S. Pittman-Breeding-Simco, Elder 3	750	2285
Pure, E. S. Hughes 6	493	2550
Stanolind, Burleson 47	130	2109
UPTON COUNTY (Wildcat)—		
Maverick Oil Co., A. B. Holmsley-Humble 1	*	4042
WARD COUNTY—		
Gulf, E. W. Estes 45	706	2650
E. W. Estes 47	574	2940
Hutchings 78	149	3100
Hutchings 85	928	2532
G. W. O'Brien 86	254	2761
Lindsay Drl. Co.-D. H. Bolin, Wallis-Standard 1-B	47	2640
Magnolia, Geo. Sealy 2, sec 55	*	3269
Reno Oil Co., Hardage-Wilson 7	309	2480
Standard Oil Co. (Tex.), Gordon 43	173	2525
T. P. Coal & Oil, H. James 21	276	2505
Tide Water Associated, Johnson 41	1166	2620
Joe A. Worsham et al, Carr-Reynolds 3	31	2230
WINKLER COUNTY (Emperor)—		
Bert Fields et al, E. W. Cowden-Pure 3-A	1606	3005
R. Olson Oil Co., E. W. Cowden 1	520	2996
WINKLER COUNTY (Henderson)—		
Humble, J. B. Walton 16-C	1007	3058
Skelly, Daugherty 2-B	3600	2066
WINKLER COUNTY (Kermit)—		
Gulf, Daugherty 58	792	3155
Humble, N. R. Colby 8-B	535	3080
N. R. Colby 18-C	1307	3110
Magnolia, Walton 103	1039	2945
Walton 104	962	2801
N. R. Colby 14	358	3110
Navarro Oil Co., J. A. Drane 3	997	3090
Sinclair Prairie, F. Vaden 2	655	3052
WINKLER COUNTY (Hendrick)—		
Skelly Oil Co., F. Leck 6-A	395	3100
WINKLER COUNTY (Keystone)—		
Richardson Oils, Inc., Walton-Humble 3	99	3428
Walton-Humble 7-B	660	3410
YOAKUM COUNTY (Bennett)—		
Siosi Oil Corp., Bennett 1	418	5277
YOAKUM COUNTY (Wasson)—		
Denver Prod. & Ref. Co., J. A. Whittenburg 1	892	5001
YOAKUM COUNTY (Wildcat)—		
Bohago Oil Corp.-Bond Oil Corp., M. West 1	50	5255

NORTH TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ARCHER COUNTY—		
L. T. Burns et al, J. S. Bridwell 7-A	*	904
Continental, G. E. McDaniel 1, blk 28	*	1549
Fraser & Proctor, L. C. Garvey 1, sec 66	*	1280
Huggins Oil Co., W. Ford 12	*	1802
A. P. Nicholson et al, H. O. Prideaux 1	*	658
Rathke Oil Co., G. P. Meade 1-B, blk 35	*	1750
Schroeder & Goldsmith, John Connor 2	4	1112
Shappell Oil Co., J. Connor 4-A	25	1105
Westmount Oil Co., J. T. Dempsey 2, blk 10	17	1104
Van Wormer & Boller, Falls County 6, blk 62	15	1174
CLAY COUNTY—		
Bridwell Oil Co., J. H. Boddy 2	*	2330
T. E. Sigler et al, G. W. Scaling 1	*	1210
Sussex Oil Co., C. J. Shumake 6, blk 4	65	1139
C. J. Shumake 7, blk 4	*	1445
COOKE COUNTY—		
Burk Royalty Co., Ed Wilson 2	2	1956
Fain-McGaha Oil Corp., J. W. Mount 3	76	1855
A. D. Robinson et al, J. H. Otto 8-B, blk 5	53	1300
Trumter Oil Co., Andress 10	48	780
JACK COUNTY—		
Algord Oil Co., S. M. Jones 4	265	3229
Burk Royalty Co., S. M. Jones 2	424	3123
Cockburn Oil Co., J. M. Box 2	315	3120
J. M. Box 4	382	3153
W. H. Hammon et al, P. L. Rhodes 1	50	2979
W. H. Hammon & Herbert, F. H. Rhodes 11	516	3028
Hanlon & Buchanan, Inc., Sampley 5	802	3020
Hill & Hill, D. C. Clayton 8-B	469	3118
Josaline Prod. Co., J. A. Beasley 2	86	3052
Mar-Tex Oil Co., D. C. Clayton 9	80	3025
S. M. Jones 8	165	3108
Ohio Fuel Supply, D. C. Miller 1	341	3019
Two Well Oil Corp., S. M. Jones 2	800	3191
MONTAGUE COUNTY—		
Bridwell Oil Co., L. J. Cunningham 2-D	*	1964
Gibson-Jennings, Inc.-Sinclair Prairie, R. Holt 3, blk 55	20	1792
THROCKMORTON COUNTY—		
F. N. Palm et al, E. T. Parrott 1, sec 1640	*	806
WICHITA COUNTY—		
Deep Oil Dev. Co., Munger-Conoco 1-D, blk 25	500	3876
W. H. Hammon et al, Waggoner Bros. 3, blk 7	*	315
Pois & Schulz, Foster-Allen 2-I, sec 2	15	893
S. H. Walton et al, Will Burnett 1, sec 1	8	480
Will Burnett 2, sec 1	*	515
Will Burnett 3, sec 1	*	512
Wilson & Ligon, Foster-Allen 6, sec 1	*	1700
YOUNG COUNTY—		
S. S. Alexander et al, L. D. Clark 5-A, sec 209	*	875
L. D. Clark 5-B, sec 209	*	860
C. E. Beavers et al, C. J. Taack 1, sec 264	*	800
A. R. Eppenauer et al, J. D. Hazelton 1	*	4248
B. C. Gilmore et al, Loftin Bros. 1	*	630
Sams & Watson, E. B. Calvin 7	*	595
Welsh & Lennon, Geo. Garrett 1, blk 11	*	552
West & Honea, B. N. Honea 2, sec 1492	72	830
Wise & Jackson, F. M. Cullers 17, blk 2	8	565

*Failures; †Junked; ¶Million cu. ft. gas.

What is a dead well? becomes important point.

* * *

Drilling in big field shows increase.

Kilgore, Texas.—Completions in the East Texas field averaged about 10 daily the past week. There were 62 flowing and pumping wells, 4 dry holes and two junked tests. Majors were credited with 23 completions, or about one-third of the total.

Search for dead wells alleged to be carried on the proration schedule, with production quota derived from other wells on the same and adjoining leases was undertaken by the Railroad Commission September 28. Series of conferences on procedure, and selection of personnel to wage the campaign were attended by Col. E. O. Thompson and V. E. Cottingham, commissioner and director of production, respectively.

Accounted for dead wells, according to commission's records, vary from 45 to 60 on each daily report. Currently the field has 23,643 flowing and pumping wells, with an allowable of 480,389 barrels. No specific rule has been observed as to what constitutes a dead well, and producers that are considered to be temporarily off production due to paraffin clogging, mechanical trouble and for other somewhat similar reasons are not listed on the official count.

Rapid dissipation of bottom-hole pressure, and persistent reports of aggravated water intrusion along 3 flanks of the huge structure have not influenced drilling. Currently the field is credited with 93 rigs in operation, as compared to 85 the week previous. Permitted well density of a given lease is largely a matter of derrick space, economic viewpoint of the owner and volume of opposition raised by adjacent property owners. The Railroad Commission is adhering to its long-established lenient policy of granting exceptions to well spacing rules in this particular field. Groups of attorneys are making a specialty of procuring well permits, while other groups are likewise profiting by challenging exceptions with district court injunctions. An unusually large number of injunctions have been filed lately, mostly by majors. The latter occasionally file against each other.

Humble and Gulf's Paluxy wildcat tests salt water

Tyler.—The Paluxy sand and lime series, potential source of production for the first Trinity test immediately east of the East Texas field, tested salt water. This deep test, Humble Oil & Refining Company and Gulf Oil Corporation's E. D. Robertson 1, M. Mann Survey, Gregg County, about 4 miles east of production, entered the Paluxy at 4541 feet, with an elevation of 272 feet. It was drilling at 4850 feet as the week closed, and the lower Glen Rose is the next important horizon.

Other lower Trinity projects under way in East Texas basin area made uneventful progress the past week, while two Woodbine tests were listed as failures among the late completions.

Two Woodbine Failures

E. C. Holt, Young et al's W. H. Chambers 1, about 2¾ miles north of Keechi, Freestone County, quit in water sand at 6165 feet, with an elevation of 426 feet. Joiner Oil Corporation's Morris Sheppard 1, 4 miles northwest of Naples, Morris County, found water in the Woodbine, and was ordered plugged in lime at 4501 feet.

Henderson County has a trio of lower Trinity tests. Tide Water Associated Oil Company et al's McElreath-Suggett 2-C, second project for the Opelika structure, has penetrated about 125 feet of Travis Peak zone in coring to 9205 feet. American Liberty Oil Company and E. B. Larue's Johnson 1, located on the Larue salt dome, entered the Georgetown lime series at 5520 feet, with an elevation of 464 feet, and was drilling at 6715 feet. Sherman Hunt & McMillan's A. R. Dillard 1, H. Jeffrey Survey, about 3 miles northwest of Tool and on the Mexia-Talco fault trend across northwestern Henderson County, was drilling lower Woodbine at 3530 feet, having topped this zone at 3095 feet, with an elevation of 361 feet.

Limestone County has two Trinity tests. Pure Oil Company's Kendrick 16, Mexia field, was drilling at 7760 feet, and is 2104 feet in the Travis Peak. It is due to drill to the lower Marine. Stanolind-Ramsey Petroleum Corporation's Norris 1, located on the Thornton fault, logged top of Georgetown lime at 3255 feet, with an elevation of 528 feet. Nine-inch pipe has been cemented at 3295 feet.

The fourth test for the Grapeland gas pool, Houston County, failed to yield the usual gas volume, but showed oil cut mud and salt water when a formation tester was used in Woodbine at 6072-6082 feet. American Liberty Oil Company et al's J. A. Bean 2, about 2200 feet east of the discovery and in the northwest corner of the Wm. Burke Survey, will run pipe for a production test. Completion of this well will conclude the company's drilling obligation that was assumed in acquiring the discovery gasser and supporting acreage.

May Use Failure for Water Injection

Failure of Magnolia Petroleum Company's K. Mainard 12, located between producers near the south edge of Talco field, Titus County, to produce after acidizing Paluxy sandy-lime topped at 4275 feet, and solid zone of sand, saturated with tar, at 4327-51 feet, may result in the hole being utilized as a water input well. About 1500 gallons of acid was injected at a maximum pressure of 1500 pounds, with a minimum of 500 pounds.

Gets geophysical option on large Sabine County block

Center, Texas.—C. C. Carter of Dallas recently took a geophysical option on 31,000 acres of leases in the southwest part of Sabine County, Texas, of which about five-sixths is Temple Lumber Company fee. Carter has 150 days to make a geophysical survey, 60 days more to get such leases as he desires after the survey, and 60 days additional to start drilling two 7500-foot tests.

EAST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
JOINER AREA—		
American Trading & Prod. Corp., Cook 11 (35.85-ac)	7000	3710
Arkansas Fuel Oil, Ferguson 15 (73.16-ac)	8200	3671
Blackwell O&G Co., S. Stone 10 (53.04-ac)	7600	3685
British-American, Kangerga 16 (70-ac)	8500	3596
Elm Oil Co., G. M. McElroy 4 (10.17-ac)	6000	3763
G. B. R. Oil Corp., L. Harmon 19 (26.87-ac)	7800	3743
Golden Eagle Oil Co., Reese-Beardon 2 (15.35-ac)	500	3809
Osher Goldsmith et al, A. Wiley 1 (109.64-ac)	1500	3760
Great Plains O&G Co., S. Stone 7-A (25.65-ac)	8000	3670
Humble, A. D. Blackwell 55 (325.79-ac)	8200	3659
J. R. Box 23 (165.72-ac)	10,500	3757
Hunt Oil Co., Bradford 14-F (55.8-ac)	240	3617
P. G. Lake, Inc., J. Lee 6-C (46.56-ac)	1200	3755
McMurrey Oil Corp., G. A. Turner 26 (195.63-ac)	3500	3798
Magnolia, Roy Loosier 19 (137.7-ac)	7800	3704
Royal Pet. Corp.-Dearing & Son, McDavid 15 (78-ac)	160	3700
J. M. Rush et al, N. Cooper 3-B (23-ac)	*	3638
Sinclair Prairie, J. W. Ashby 2 (54-ac)	*	3708
J. B. Wilson 14 (131.4-ac)	7200	3627
Sun, J. P. Seale 9 (199.32-ac)	1200	3717
Venable Oil Co.-McClanahan, J. W. Flanagan 9 (33¾-ac)	7600	3639
Ward Oil Corp., J. M. Finney 17-A (74.51-ac)	3600	3747
KILGORE AREA—		
American Liberty, Sabine River 37, Tr. 5 (196-ac)	8900	3517
Arcadia Ref. Co., E. Samples 19 (101.66-ac)	750	3758
Atlantic Ref. Co., L. P. Griffin 18 (85.66-ac)	7200	3664
B. H. Bird et al, C. Wells 1 (39.8-ac)	*	3714
Everts Drl. Co., O. Cook 3 (16.49-ac)	7300	3658
L. O. Gandy et al, I. Benson 3 (4-ac)	3500	3609
Gulf, S. Hilburn 98 (242.6-ac)	7600	3522
Wm. Jernigan 18 (88.82-ac)	8300	3661
Hamill & Smith, Inc.-C. B. Hardin, J. T. Butts 1 (22/100-ac)	3600	3555
Hastings & Dodson, M. B. Hughey 2 (53/100-ac)	2500	3544

Company, Well and Location	Init. Prod. Bbls.	Depth
Houston Oil Co., W. J. Brightwell 7 (20-ac)	9000	3657
Magnolia, C. C. Still 15 (105.83-ac)	10,600	3680
Perot Oil Corp., J. L. McNeely 7 (17½-ac)	2500	3629
Potter Bros. et al, J. E. Bagwell 1, lot 2, blk 120	2500	3562
Mrs. W. R. Crim 1, lot 6, blk 120	3000	3562
Dickson 1, lot 3, blk 120	2500	3562
Annie B. Laird 1, lot 4, blk 120	2500	3562
Harry Shulman et al, Jim Dorris 3 (2.81-ac)	500	3540
Sun & Seaboard, M. T. Cole 51 (266.17-ac)	7200	3564
W. C. Turnbow Pet. Co., A. Clary 8 (22½-ac)	135	3551
LONGVIEW AREA—		
Amatex Pet. Co., C. Jones 7 (14-ac)	9600	3614
Amerada, Cont'l State Bank 16 (100-ac)	8500	3623
M. Killingsworth 14 (100-ac)	9200	3602
Atlantic Ref. Co., J. C. Judge 85-A (455-ac)	10,000	3637
J. M. Moore 79 (447¼-ac)	10,200	3638
Atlantic-Sun, M. Hays 83 (448-ac)	10,500	3600
Dean Bros.-B. F. Phillips, J. A. Godfrey 1 (5-ac)	†	3212
Deep Rock Oil Corp., B. Jones 15 (61.12-ac)	9600	3623
Delta Drl. Co., R. A. Atkins 5 (123-ac)	600	3723
Fleming-Kimball Corp., J. Barnes 10 (30-ac)	9500	3609
Gen'l American Oil Co., A. J. Sanders 21-A (73.63-ac)	6500	3601
Gen'l Crude Oil Co., Barnswell 12 (50-ac)	8800	3494
Gulf, J. C. Judge 84 (518.3-ac)	10,300	3516
Humble, A. L. Hughes 19 (91.8-ac)	7500	3603
G. W. Willingham 14 (100.6-ac)	4200	3658
M. M. Johnston et al, C. F. Williams 7 (44-ac)	1500	3697
Joe Long-Cushing Drl. Co., Owens 26-A (208-ac)	3600	3571
Jim McMurrey et al, T. Snoddy 5 (10-ac)	8900	3595
W. L. Pickens et al, J. W. Free 3 (15½-ac)	4200	3729
Rudco O&G Co., Nicholson 3 (113½-ac)	†	2600
Shell, W. T. Burnsides 25 (160-ac)	9600	3529
W. T. Burnsides 26 (160-ac)	9800	3526
Skeeter & Day, E. W. Crosby 1 (40-ac)	*	3751
Stanolind, T. Snoddy 3-B (13.33-ac)	7800	3629
Stanolind-Tide Water, J. H. Boles 7 (30-ac)	8600	3583
The Texas Co., T. W. Lee 24 (210-ac)	7700	3552
ANDERSON COUNTY (Cayuga)—		
Tide Water Associated-Seaboard, Wills 26-A	3600	4092
FRANKLIN COUNTY (Talco)—		
Cliff Camp Drl. Co., Dean Bros. 1 (1-ac)	480	4314
Dean Bros. et al, O. E. Bolin 1 (9.24-ac)	250	4332
Gray & Wolfe, O. E. Bolin 2-A (12.31-ac)	295	4320
Humble, Norman-Prince 1 (127.67-ac)	445	4312
Magnolia, C. L. Owings 9 (79½-ac)	359	4298
J. Z. Werby & Tune, T. J. Sanders 2 (45-ac)	170	4295
HOPKINS COUNTY (Sulphur Bluff)—		
Shell, Reynolds 6 (200-ac)	94	4520
The Texas Co., E. Davis 3 (300-ac)	35	4544
TITUS COUNTY (Talco)—		
Cable Tool Drl. Co., W. T. Edwards 3 (10-ac)	201	4310
G-M-W Oil Co., W. T. Edwards 5 (50-ac)	122	4318
Humble, M. Batson 7 (144.27-ac)	316	4333
H. C. Fry 4 (87-ac)	253	4305
Magnolia, K. Mainard 12 (130¾-ac)	*	4351
Alex McCutchin et al, J. Hargrove 1 (3-ac)	75	4340
Tide Water Associated, L. H. Wilson 8 (129.21-ac)	190	4296
L. H. Wilson 9 (129.21-ac)	432	4276
BOWIE COUNTY—		
Woodley-Bentley et al, J. D. Lumpkin 1 (245-ac)	*	5690
MORRIS COUNTY—		
Jim O. Whittington et al, C. J. Browne-Joiner Leasing 1 (320-ac)	*	5014
CASS COUNTY (Rodessa)—		
United Prod. Corp., Fee 2 (575), B. Holmes sur	240	6024
MARION COUNTY (Rodessa)—		
United Prod. Corp., Hutchinson 2, A. de los Santos Coy sur	840	6116

*Failures; †Junked; ¶Million cu. ft. gas.

SOUTHWEST TEXAS

Maverick County discovery well gets acid dose.

* * *

Nueces County wildcats uncover new oil sands.

* * *

New shallow field in Mirando district seems assured.

San Antonio.—Wellington Oil Company was acidizing Chittim Ranch 1, discovery well of a new Edwards limestone producing area in Maverick County. The well came in September 27 and flowed 69 barrels of oil in nine hours through ¼-inch choke, rocking up pressures of 70 pounds on tubing and 285 pounds on casing. The flow became intermittent and the hole again was swabbed, recovering about 10 to 12 barrels of crude per hour. The acid treatment is expected to bring about sufficient pressure to allow the well to flow.

The test, located 2910 feet east of the present Chittim field production, is believed to be on an entirely separate structure, cut off from the other area by faulting. Likewise, the original field is producing from the Glenrose at 5600-5800 feet, while the new producer is in the Edwards limestone at 3255-87 feet. One well in the old Chittim field did produce some oil from this formation, but finally went to water and was carried to the lower sands.

This discovery is on a portion of Wellington Oil Company's 375,000-acre lease block embracing portions of Dimmitt, Zavala, and Maverick counties. Although the company has a large block, there are other holdings sufficiently close in that they may come within the play.

Chittim anticline has been looked upon as one of the most favorable large structures for Cretaceous production in South Texas. The main structure covers an area probably 100 miles long, although the production in this field and others, which may be discovered in the future, will depend largely on local closures by either faulting or other disturbances. The majority of the exploration along this trend has been confined to the area in the immediate vicinity of the Chittim and Sullivan Ranch deep Glenrose gas wells. Some shallow work has been done with showings of fair importance encountered down to the Austin chalk.

During the past few years considerable leasing has been underway through this area and several deep wells have been drilled. Rumors are that an extensive campaign will follow during the next year.

The oil from this new producer is very attractive, correcting to 42 degrees and being high in gasoline content. It is produced with a sulphur gas and corresponds closely to the crudes produced in other Edwards limestone fields of South Texas. The oil is 78 degrees as it is produced from the well and shows a gravity of 44 degrees, thus indicating that the present producer is reasonably far from the water line.

When Edwards limestone production is discovered in South Texas, it is viewed with great concern. Three major fields, Darst Creek, Luling and Salt Flats, have been developed in this horizon, their average recoveries from 2200-2700 feet, being around 40,000 barrels per acre. Some leases have recovered as high as 125,000 barrels per acre. In addition, Branyon, Buchanan and Larremore have uncovered Edwards limestone oil, but it has been in limited areas.

During the past several months, two Edwards limestone strikes have been recorded in South Texas, both being in the territory southwest of San Antonio and in the center of the present new deep Cretaceous play. Amerada Petroleum Corporation completed Halff & Oppenheimer 8, on the large Pearsall structure in Frio County, at 6230 feet in the limestone, where it made considerable 37.9 gravity oil. Too much water caused its deepening, the test now progressing below 10,705 feet in the Trinity. It is the second 10,000-foot hole for the field.

Batesville, northeastern Zavala County, came in as a 5000-barrel producer from the Edwards limestone at 3947 feet. The discovery was peculiar in many respects. The oil was hot when the test was first completed and the crude was 16.6 gravity, lowest of all Edwards limestone crudes. It soon made a large amount of water, last reports being a ratio of about 100 barrels of oil to 1000 barrels of water per day on pump. This is the only test in the field and its future depends on further exploration.

Up in the shallow area, one new pool was opened and another test in wildcat territory was being completed.

Hantho Nelson, Inc.'s K. M. Litton 1, 2½ miles east of Cedar Creek, Bastrop County, pumped 69 barrels the first nine hours from Austin chalk at 1972-2132 feet. The well had been

drilled to 2517 feet, in the Edwards limestone, plugged back and acidized with 4000 gallons. This test attempted completion several times, and finally has been placed on regular production to open the first Austin chalk area in this county. Two miles to the southwest, R. Olsen Oil Company's Murchison 1, plugged back from 2315 feet in the limestone to 1875 feet in the chalk, shot with 80 quarts of nitro, which collapsed the casing. It has been abandoned.

B. C. Armstrong's Wilson Bell Estate 1, S. Seal Survey, north side of the Luling townsite in Caldwell County, is bottomed at 2447 feet, in Austin chalk topped 2407 feet. It is standing 1100 feet in oil and is ready to test on pump.

Results open territory for more Mirando area drilling

San Diego.—One shallow Mirando district field apparently was being opened, while another was being widened 1½ miles. They provide further territory along the lower trend of this Jackson sand area for immediate development.

E. J. Pearl et al's de la Garza Estate 2, Webb County, cored oil sand at 2100-7 feet, drilled to 2110 feet in shale and ran a drill-stem test. The attempt was unsuccessful and casing was landed atop the horizon. Should it develop production, the test will open an entirely new field in the Mirando horizon six miles southwest of the Lopez area and two miles northeast of Carolina-Texas. Its exact location is in the northwest corner of Section 48. A sand previously had been cored at 1966-72 feet, which carried odor of oil and salt water.

This test is on the general trend with the Lopez, Killam and Oilton areas. The former has completed an extensive drilling campaign, while the latter areas are at this time in the throes of a heavy program.

Farther to the northeast in Duval County, Rancho Solo field, a Cole-sand producing area, comes in for considerable attention. Cox & Hamon's W. R. Peters 1, southwest corner Section 32, 1½ miles northeast of production, drilled to 1898 feet, finding sand with oil odor at 1882-98 feet, which tested salt water, then plugged back to 1838 feet. Casing was set at 1831 feet and plugs drilled at the week-end. This test cored soft oil sand at 1826-35 feet, then sandy shale to 1836 feet, below which good oil sand was found to 1838 feet. A drill-stem test at 1826-38 feet recovered 300 pounds pressure with 120 feet of mud through ½- and ⅜-inch chokes in 3 minutes. A second test, seated at 1829 feet, recovered five feet of oily mud and some free oil with 320 pounds working pressure through ½- and ⅜-inch chokes. This sand is in the Cole series, being the upper portion of the Jackson formation.

The general trend has a number of shallow tests drilling, their goals being either extensions to present fields or attempts to establish new sand lenses on known structures.

Several wells on highly touted Duval County prospects failed to materialize. E. R. Thomas Estate's Pena 1, 14 miles west of San Diego, encountered several salt water sands and is drilling below 4256 feet. Porter, Talbot & Dorn's A. Montemayor 1, five miles southeast of Benavides, is progressing near 4900 feet, having passed through several salt water sands which carried some oil odor. H. J. Porter's Sevier 1, Section 754, is a failure in the Cockfield at 6012 feet.

Adams & Lefevre's M. Selman 1, southeastern corner of McMullen County, was abandoned in the Pettus sand at 3020 feet, the formation being topped at 2999 feet. This formation carried an oil odor, but did not develop production. It previously showed considerable oil and some water in the Government Wells section at 2512-40 feet, which may lead to further drilling in the area.

Edwin M. Jones was preparing to complete 11 wells on the Ezzell Ranch in eastern McMullen County. These 1500-foot tests had been drilled through the sand, casing cemented and rig moved off. Pipe line connections have been made to all of the wells and they are now being placed on production. This shallow Jackson sand area apparently will be large from area standpoint and will attract considerable drilling.

Agua Dulce-Stratton trend wildcats show for producers

Corpus Christi.—Two Nueces County wildcats were in process of completion, each opening new sands along the Agua Dulce-Stratton trend. Camp Production Company's Wardner, Trustee, 1-A, one mile southwest of the Stratton field, after drilling to 6521 feet, set casing on bottom and perforated approximately 6500-05 feet. It was ready for production test late in the week.

The test was flowing considerable wash water and some high gravity oil with a fairly large amount of gas through 5/32-inch choke, showing pressures of 2050 pounds on tubing and 2020 pounds on casing. It was being allowed to clean slowly.

The well, which opens a fourth sand for the area, found gas and distillate saturation at 6476-6509 feet, below which broken material was encountered, showing both oil and gas, but carrying a salt water odor near bottom.

Several miles to the northeast and in the South Agua Dulce field, Texon Royalty Company's Mabel Eliff 2 found a new sand at 6637-68 feet, set 5-inch liner and gun perforated. It also was making a production test as the week closed.

The test showed too much gas, and perforations have been squeezed off. It will be reperforated for additional tests.

Farther southwest, but in the southeastern corner of Jim Wells County, Magnolia Petroleum Corporation was coring in Seeligson 7, having had gas sand from 6582-6719 feet, still in same formation. It will likely set a protection string of casing as soon as the next shale break is encountered.

Heyser Extended

The 5500-foot pay in the Heyser field, Victoria and Calhoun counties, definitely was extended 4600 feet northwest by the completion of T. P. Traylor 1 of Gulf Oil Corporation. The well flowed 70 barrels of oil in 11 hours through ¼-inch choke under pressures of 2100 pounds on tubing and 2250 pounds on casing from oil sand at 5584-89 feet. The sand section from 5507-84 feet showed gas.

In the Greta area of Refugio County, Union Producing Company was searching for deeper sands in Fox 20. The well recovered 390 feet of oil and 30 feet of salt water with 150 pounds working pressure on a 10-minute drill-stem test through ¼-inch chokes at 6465-79 feet. An additional body of sand from 6479-6507 feet carried both water and oil.

South Ricaby results for week not encouraging

Mission.—South Ricaby, new shallow field in Starr County, received several set backs during the week through the abandonment of two tests. G. E. Dodd's Ben D. Ricaby 5, tested salt water at 1767-72 feet, Edwards & Quinlan's Vela 1, east of the field, went to 1854 feet. East of the field, Dean Brothers have perforated and are testing in a sand at 1864-73 feet. It is attempting to open a new horizon for this pool.

Standard Oil Company of Texas' Mestina 2, Lease 2, attempting to open a new sand in the North Alta Mesa field, Brooks County, flowed sulphur water after perforating at 2363-2404 feet and cemented back to 2391 feet to test again.

In Hidalgo County, Atlantic Refining Company has commenced McCalip 1, Tract 786, Section 175, 2½ miles southwest of Weslaco. Contract has been let to O. S. Dyer for an 8300-foot hole. Three 8000-foot tests are active in the La Blanca area. D. Davenport's Hidalgo 1 is nearing 6000 feet, while Davenport's Swallow 1 is coring at 7510 feet. Gulf States Oil Company's Delta Orchards 2 encountered strong gas pressure and was abandoned at 2845 feet. A second hole set 2000 feet of pipe for protection and is ready to drill ahead.

Willacy County has two tests drilling, both of which will test sands below 9000 feet. Magnolia Petroleum Company's Armendiez 1 set 13⅜-inch casing at 2480 feet, while Shell Petroleum Corporation's Yturria 2 is down 6000 feet and drilling.

New starts in Texas total 314 last week

Austin.—The Texas Railroad Commission approved last week permits for drilling 314 new wells in Texas, 74 less than were allowed the week before.

In the East Texas field there were only two new locations, one in Rusk County and one in Smith County. East Central Texas reported 37 new permits, including 16 in Titus County.

There were 54 new permits in the West Texas district, including 24 in Ector County. The Panhandle area listed 38 new locations, with 13 in Gray County and 18 in Hutchinson County.

There were 24 locations allowed in the North Texas district, all scattered. West Central Texas listed 20 locations.

In the Gulf Coast area there were 80 new locations, of which 14 were in Brazoria County. Southwest Texas reported 59 permits, including 10 in Webb County.

Carbon black plant building in Saxet area

Corpus Christi.—First carbon black plant for the South Texas Gulf Coast will be constructed in the Saxet field of Nueces County by Columbian Carbon Company, to consume between 25,000,000 and 30,000,000 cubic feet of gas per day.

The project became known during the week when H. H. Reardon, general manager, announced that his concern had contracted with the Southern Minerals Corporation for residue gas from the latter's natural gasoline plant in the Saxet field, which is processing 40,000,000 cubic feet of gas per day, being the tail gas from the 5800 to 6900-foot oil wells in the western portion of the field.

Under present plans, construction will commence about October 15 with completion expected within six months.

Two new companies take over United Gas holdings and others

Houston.—Acquisition by two newly formed companies of the gas and oil properties formerly owned by United Gas Public Service Company and three subsidiaries, United Production Corporation, Northern Texas Utilities Company and Southern Gas Utilities, Inc., was announced September 29 by N. C. McGowen, president.

The new companies are Union Producing Company and United Gas Pipe Line Company. Union Producing Company has acquired all gas and oil producing properties of United Gas Public Service Company and these subsidiaries, and all natural gas transmission facilities, including gasoline extraction plants, formerly owned by these companies have been acquired by United Gas Pipe Line Company.

Since all the functions previously performed by four companies will now be concentrated into the two new companies, the change represents a further step in the simplification of the corporate structure and operations, according to McGowen.

T. J. DONOGHUE, vice president of The Texas Company, Houston, is on a business trip to New York City.

SOUTH TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
SAN ANTONIO DISTRICT		
BASTROP COUNTY—		
Hantho-Nelson, K. M. Litton 1, 400 ft nel, 450 ft sel, 71-ac tr, Addison Litton sur, 2½ mi e Cedar Creek	225	2517
R. Olsen Oil Co., M. Murchison 1, commence at sw cor 64-ac tr, thence sw along nw Murchison 505-ac tr 1350 ft, thence se at rt angles 1523 ft, to lcn, A. Litton sur	†	2315
BEXAR COUNTY—		
L. K. Oil Co., William A. Russell 2, 525 ft sel, 4386 ft swl of 723-ac tr, F. Rodriguez sur, ½ mi n Leon Creek	*	1240
CALDWELL COUNTY—		
J. C. Bertraund, W. A. Magee 2, J. Neill sur (Branyan)	20	2295
Lincoln Pet. Co., F. M. Branyon 8, J. R. Miller sur (Branyon)	18	2343
Ralph Ogden, C. L. Lackey 2, Squire Damon sur (Dale), plug back 2200 ft	192	2700
L. G. Priest et al, A. V. Chambliss 1, S. Goodman sur (Buchanan)	30	2652
Universal Oil, Gas & Mining Co., W. H. Calliham 2, John Miller sur (Branyon)	*	2405
DIMMITT COUNTY—		
Wilcox O&G Co., Light Ranch (Myssie) 3, 330 ft nl and wl sec 13	*	4815
FRIO COUNTY—		
Amerada, W. H. Smith 4, J. Mason sur (Pearsall)	860	5450
GUADALUPE COUNTY—		
Bayou River Oil Company, State of Texas 1, J. K. Davis sur (S. Darst Creek)	800	2390
Forest Dev. Corp., Martin Hoffman 4, Green DeWitt sur, (Zoboroski)	30	2492
WILLIAMSON COUNTY—		
Taylor Ref. Co., E. Matteck 1, H. White sur (Byersville)	*	1000
LAREDO DISTRICT		
DUVAL COUNTY—		
Continental, Clara Driscoll Sevier 18-A, J. P. Nelson sur (Driscoll)	55	3376
Cox & Hamon, O. W. Greene 23, BS&F sur (Hoffman)	50	2715
Gruy Estate 3, AB&M sur (Rancho Solo)	20	1845
Cox & Hamon and Gorman-Yoakum, E. Robles 9, sur 68 (Hoffman)	30	2684
S. Daube & Co., Z. Campos 36, J. Poitevent sur (Seven Sisters)	120	2734
Z. Campos 37, J. Poitevent sur (Seven Sisters)	144	2730
Z. Campos 38, J. Poitevent sur (Seven Sisters)	100	2715
Z. Campos 39, J. Poitevent sur (Seven Sisters)	168	2710
Z. Campos 40, sur 224 (Seven Sisters)	145	2699
Government Wells Oil Corp., Inc., H. A. Lundell 7, sur 140 (Lundell)	360	1537
Hiawatha Oil & Gas Co., G. Herberger 1, Ball Ranch sur (Sweden)	450	5896
Jill'an Parr 3, San Andres grant (N. Sweden)	750	4735
Liberty Oil Co., State of Texas 1, sec 216 (Seven Sisters)	*	1572
Magnolia, Emil Labbe 3, H&GN sur 2	*	2861
H. J. Porter, C. Driscoll Sevier 1, 467 ft nl and wl, blk 14, sec 754 in J. A. Cuellar gr	*	6012
Sarnosa Oil Co., A. Weil 18, sur 130 (Sarnosa)	100	2414
V. G. Schimmel, E. R. Hagist 3, 330 ft sl and el of 41.2 ac lse out of nw¼ BBB&C sur 4	*	2606
Standard of Kansas, Lillian Parr 6, Parr tract, San Andres grant (N. Sweden)	600	4758
S L I C 2, Santos Flores grant (N. Sweden)	300	4815
E. B. Walstad et al 3, sec 9 (N. Sweden)	300	4793
A. H. Tarver, D. Ruiz 1, C&M sur (Sarnosa)	*	3010
JIM HOGG COUNTY—		
French Oil Corp., Paula V. de Garza 5, sur 39 (Alworth)	*	1072
McMULLEN COUNTY—		
Adams & Lefevre, Margaret Selman 1, 990 ft sl, 330 ft wl of ne¼ of sec 58, A. Spaulding grant	*	3020
J. V. Fleming, H. L. Lark 4, E. W. B. Scrugham sur (Calliham)	12	1031
Rowan & Nichols, D. W. Rhodes 1, M. F. Loew sur, 330 ft sl and el, sec 22	*	2606
STARR COUNTY—		
G. E. Dodd, Trustee, Ben D. Wood 5, por 84, J. of Camargo (S. R'caby)	*	1775
J. W. Edwards, Quirino Vela 1, 150 ft nl and wl, lot 2, blk 6, El Tanque subd	*	1854
Roy Gaines, Goodrich & Wood 1, 150 ft nl, 750 ft wl, 40-ac tr, por 81, share 5, blk 8	*	1618
Henshaw Bros. & Davis, M. M. Garcia 1, 330 ft sl and wl, tr 40, por 89	*	2855
WEBB COUNTY—		
Mills Bennett Prod. Co., D. G. Garcia 4, sur 337 (Killam)	38	2035
J. B. Blanchard et al, Laurell Bros. 1, 150 ft nl and wl sw¼, sur 1006	¶1 & 20	1930
Bridwell Oil Co., Maria G. Martin 4, sur 2167 (Oilton)	215	1920
French Oil Corp., J. M. Garcia Est. 4, 660 ft nl, 2640 ft el, sur 1121, 1½ miles e Killam field	*	2629
J. O. Perez 1, sur 1007 (Killam)	90	1987
Gypsy Oil Co., Maria G. Martin 11, sur 458 (Killam)	160	1901
O. W. Killam, A. M. Bruni Estate 56, sec 8, Foltz subd (Cole-Bruni)	85	3405
D. G. Garcia 24, sur 786 (Killam)	125	1984
Rowan & Hope, Laurell Bros. 3, sur 1006 (Oilton)	100	1943
Smith & Hamill, Maria G. Martin 3, sur 2167 (Oilton)	160	1884
Maria G. Martin 4, sur 2167 (Oilton)	420	1904
ZAPATA COUNTY—		
B. W. Roscoe, C. Bustanante 15, sh 33 Fansler Partition, Comitas gr, (Escobas)	20	1289
Russell Leasing Co., C. Bustamante 4, blk 10, sh 10, Comitas grant (Escobas)	20	1201
CORPUS CHRISTI DISTRICT		
ARANSAS COUNTY—		
Atlantic Ref. Co., W. G. McCampbell, J. Orrick sur (McCampbell)	250	7139
Peach Tree Oil Co., L. L. Porterfield 2, lots 15 and 16, blk 10, McCampbell Ranch subd (McCamp- bell)	¶2 & 100	7132
BEE COUNTY—		
W. C. McBride, Inc., Mary K. Schneider 3, EL&RR sur (Plummer)	260	3052
CALHOUN COUNTY—		
Humble & Plymouth, P. H. Welder 19-A, J. M. Rios sur (Heyser)	450	5490
JACKSON COUNTY—		
Davey & Co., W. L. Hodges 1, 330 ft nl and el of tract 65, I&GN sur 7	*	lcn.
Steinberger Pet. Corp. et al, S. G. Drushell 1-C, Rodriguez sur (Edna)	¶10 & 15	5500
JIM WELLS COUNTY—		
S. B. O'Bannion & L. L. Smith, L. L. Allen 1, W. H. Bode sur (Sandia)	*	5525
KARNES COUNTY—		
Luling O&G Co., C. W. Boyce 4, S. Still sur (S. Burnell)	725	3628
Pettus O&R Co., Mrs. R. A. McKinney 3-A, R. C. Ballard sur, (S. Burnell)	500	3630
LIVE OAK COUNTY—		
Holland & Coquat, W. C. Matikin 1, 330 ft sl and wl, blk 2433, Simmons subd and in E. 2 A. Glavecke sur 1	150	1502
Unit Pet. Co., Ida Atkinson 1, 4000 ft n Frio River, 2250 ft w of el of Louis Ayres sur	*	1350
NUECES COUNTY—		
Donico Prod. Co., V. M. Donigan 8, sec 7, range 7 (Saxet)	135	4901
Houston Oil, T. M. Harrell 8-A, blk 24, Sheppard Farm Lots (Saxet)	160	4539
T. H. Isensee 4, lot 2, Sheppard Farm Lots (Saxet)	240	4564
Humble & Barnsdall, R. A. Thompson et al 2-B, sec 55, center lot 9 (Flour Bluff)	260	6662
Kepley Prod. Co., V. M. Donigan 7, sec 7, range 5 (Saxet)	275	4591
Texon Drlg. Co., Mary Janosek 1, H. B. Smith sur 25 (Saxet), perf 3823-28 ft	¶10	4227
Warner-Quinlan Co., T. H. Isensee 5, blk 1, Sheppard Farm Lots (Saxet)	90	4904
REFUGIO COUNTY—		
Houston Oil, F. B. Rooke 34, Thos. Mullen sur (Refugio)	475	6185
Illinois Pet. Corp., Wilson Heard 5-B, M. J. Ximinez sur (Tomoconnor-Greta)	¶20	5950
South Oil Corp., F. W. V. Heard 10, Refugio Town Grant (Refugio)	425	4923
SAN PATRICIO COUNTY—		
Humble, J. W. Mayo 28, J. H. W. Ottman sur (Taft)	600	3980
Plymouth Oil Co., E. H. Welder 82-C, sec 70 (Plymouth)	500	5640
Waterbury Oil Corp., Jean Davis 1, 330 ft nl and wl of 177 ac tr, G. W. Grover sur	*	6717
VICTORIA COUNTY—		
Gulf, T. P. Traylor 1, J. E. Galban sur (Heyser)	875	5589
Magnolia, Willie Beck 2, 330 ft sel 4140 ft swl of 138.2-ac tr in TNO RR sur 1	*	4832
Sun, W. N. Coffey 2, J. E. Galban sur (Heyser)	360	5748
Wallace & Sollars et al, Etta B. Terrell 1, 330 ft nwl and nel of tr, J. M. Galban sur	*	5614

*Failures; †Junked; ¶Million cu. ft. gas.

Houston.—Sun Oil Company has staked a location for an 8300-foot test to be drilled 20 miles south and slightly west of Bay City in Matagorda County. The block was assembled by George Coates of San Antonio 3 months ago and includes 5200 acres of the Fred S. Robbins land in the Sheppard and Vandveer surveys. A preliminary study was made by Leavitt Corning, Jr., with magnetometer, following which McCullum Exploration Company spent two months making a seismograph study. The block was purchased by Sun Oil Company, for a large cash and oil consideration, the exact figure not being announced. The transfer carried $76 worth of revenue stamps.

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SHREVEPORT, LA.

Broken formation showing oil in Cedar Bayou wildcat.

* * *

Magnolia finds new North Cheek sand at 8682 feet.

* * *

Heaving shale stops another Sheppards Mott test.

Houston. — Regional interest last week was centered on Ingot Oil Company and Merit Oil Company's Wright 1, Cedar Bayou area, C. Smith Survey, Chambers County, which was coring in broken formations showing oil at 6610 feet.

Top of the broken formation was logged at 6572 feet, in the lower part of the Frio. Last week the crew attempted a drill stem test at 6572½ feet but the tool slipped. Prior to this test, another test from 6485½ to 6492 feet showed salt water and oil. A drill stem test from 6492 to 6506 feet showed 1300 feet of salt water and oil, five percent oil, through quarter-inch choke in seven minutes.

Wright 1 probably will be cored ahead through or to the bottom of Frio

New Sand Found at North Cheek

A new sand was found at North Cheek, Jefferson County, when Magnolia Petroleum Company completed Phelan 2, 933 feet southeast of the discovery well, S. Stivers Survey, at 8682 feet for 670 barrels daily (five hours through a quarter-inch adjustable choke and 19 hours through a quarter-inch positive choke). Tubing pressure was 1840 pounds; casing pressure, 2000 pounds. The 43.5 gravity oil was coming from sands at 8665 to 8682 feet. Seven-inch casing was set at 8660 feet.

This new sand is about 200 feet deeper than that of the discovery well, which was completed at 8460 feet. It made 390 barrels of 66.2 gravity distillate in 22 hours through a quarter-inch choke. The new well is producing from Frio formation, as is the discovery well.

North Cheek is approximately three miles south of Amelia field, Jefferson County, which is producing from 6780 feet, about 400 feet in Frio formation.

Amelia field was defined on the southeast last week when Humble Oil & Refining Company abandoned Fitzgerald 3, after finding salt water in Frio at 8810 feet.

Sun Testing New Sand at Labelle

Sun Oil Company is preparing to test a new sand at Labelle, Jefferson County. J. Ward Estate 1, 933 feet southwest of Broussard & Hebert 2, was drilled and cored to 10,142 feet. Operators intended to test sands at 10,060 feet and while running screen it became lodged at 10,005 feet when the well attempted to blow out. The test was shut in and 2½-inch tubing is being made up to run in the hole. If the sand produces, Labelle will be the second deepest producing field in the Texas Gulf Coast.

Windward Oil Company and H. V. Ownby Drilling Company's Simms 1, east of Beasley, H.&T.C. Section 1, Ft. Bend County, which was reported to be running high on structure and to have topped the rio at 4219 feet, logged salt water sands at 4441 to 4451 feet. At the end of the week the well was down to 4806 feet in shale.

Northeast of Orchard field, Ft. Bend County, Research Incorporated's J. M. Moore 1, S. Kennedy Survey, was plugged back to 3100 feet after drilling to 7170 feet in shale. A drill stem test of Miocene sands at 3045 to 3080 feet in 15 minutes showed 660 feet of drilling mud, no oil, gas, or salt water.

Gulf Oil Corporation is exploring for a deep sand at Orchard field, Ft. Bend County. Moore 53, J. Frazier Survey, was down to 9103 feet in shale. It is the deepest well ever drilled in the field.

Another Abandoned at Sheppard's Mott

Another wildcat was abandoned at Sheppard's Mott prospect, Matagorda County, last week when Continental Oil Company drilled Hawkins 2, D. McCarthy Survey to 9210 feet. The hole was plugged after several hundred feet of heaving shale was drilled.

East of the discovery well at Palacios, Matagorda County, Atlantic Refining Company's Foley Land Company 2-A, L. Goodwin Survey, was flowing wash water with a small amount of oil from 7892 feet through a quarter-inch choke with a tubing pressure of 1450 pounds and a casing pressure of 2250 pounds.

South of the discovery well at Palacios, Sun Oil Company's Bayshore 1, L. Goodwin Survey, down to 9500 feet, was mixing mud. Gas is causing considerable trouble. Bayshore 1 is the deepest well ever drilled at Palacios.

Sun Oil Company announced location for Robbins 1, 4200 feet east and 2333 feet south of the northwest corner of C. H. Vandeveer Survey and a 5200-acre tract. The wildcat is north of Citrus Grove and southeast of Simpsonville, where two shallow wells have been drilled. Heaving shale was found very troublesome at Citrus Grove.

Hastings field, Brazoria and Galveston

Counties, had a dozen more oil wells added to its long list last week. The field is the most active field in the Gulf Coast and over 25 rigs are active in the district. Six wells are down to the sand and are either waiting on cement to set or flowing into burning pits. Eight wells nearing the sand will be completed the coming week.

Pure Will Attempt to Whip

Pure Oil Company again will attempt to whip heaving shale at Peach Point Prospect, Brazoria County, having made location for Smith 1, 520 feet south of the north line and 595 feet west of the east line of Smith 323-acre tract or approximately 7375 feet north and 4150 feet east of the southwest corner of the S. F. Austin Survey, Abstract 20. The previous week the company abandoned Slade 1 after encountering considerable trouble with the shale below 8300 feet.

Hamil & Smith's Dopsalauf 1, semi-wildcat at Fairbanks, west of Hill & Hill's Wharton 1, dry hole, W. C. R. R. Block 1, Section 4, Harris County, was abandoned last week at 7070 feet after coring salt water sands at 6803 feet and 6888 feet.

South of production at Friendswood, Harris County, V. H. Borsodi completed another producer. Berlowitz 1, T. Choate Survey, made 20 barrels per hour, 25 percent salt water, through a quarter-inch choke with a tubing pressure of 600 pounds and a casing pressure of 800 pounds from Frio sands at 6117 feet.

Another failure was marked up against Aldine prospect, Harris County, last week when Texas Gulf Producing Company stopped at 7445 feet and plugged the hole. Moore 1, W.C. R.R. Section 18, cored salt water sands at 6884 to 6893 feet and from 7219 to 7254 feet. At one time this well was considered structurally high.

Making Some Salt Water

Houston Oil Company and Republic Production Company's Pevey Moore Lumber Company 1, Call area, H.&T.C. Section 42, which came in the previous week to open a new field in the Texas Gulf Coast and the first for Newton County, was making 125 barrels of oil and a small percentage of salt water through a 3/16-inch choke, with a tubing pressure of 850 pounds and a casing pressure of 1500 pounds at 6918 feet. Pevey Moore 2 is moving in a rig.

G. C. Dixon et al made location for Morgan 1, west of Huntsville, 330 feet out of the northeast corner of a 160-acre tract in the J. Ford Survey, Walker County.

Chambers County Active

Turtle Bay, Seabreeze, Cotton Lake, South Cotton Lake fields were the most active districts in Chambers County during the past week.

Turtle Bay was extended west when Stanolind Oil & Gas Company completed Silva 2, S. Burney Survey, flowing 610 barrels per day through a quarter-inch choke with a tubing pressure of 975 pounds and a casing pressure of 850 pounds. The well was completed at 6600 feet after logging top of the sand at 6596 feet.

Salt Dome Oil Corporation and Standard Oil Company of Texas have asked for permit to drill in Galveston Bay. The permit is for State 1 is 466 feet each way out of the north corner of Irregular Survey, Tract 118.

TEXAS GULF COAST
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
AMELIA—		
Humble, Fitzgerald 3	*	6810
Guinn 9	570	6767
Tyrell Combest 17	615	6778
Tyrell Combest 18	648	6784
ANAHUAC—		
Humble, Broussard Hebert 11	*	7085
Clark 16	678	7080
Johnson 14	¶3½	7125
BARBERS HILL—		
Texas Gulf, Kirby B-22	400	4940
CLEVELAND—		
Gulf, Neville 1	*	6050
CONROE—		
A. U. Morrison, Moorehead 1	*	5066
DICKINSON—		
Atlantic, Anderson 2	500	8140
Ken Ben Oil Co., M. Stewart 5	680	8810
Pure, Shelor 3-B	207	8126
Turman Oil Co., M. Stewart 3	930	8941
FAIRBANKS—		
Amerada-Stanolind, Carpenter 2	426	6830
Hamil & Smith, Dopslauf 1	*	7070
FIVE CORNERS—		
Texas Co., Pierce Estate B-9	29	5553
FRIENDSWOOD—		
V. H. Borsodi, Berlowitz 1	480	6117
HASTINGS—		
Humble, Beers D-2	642	6080
Brown 15	227	6110
Brown B-8	664	6080
Stanolind, Butts 2	528	5940
Ford 13	564	6080
Gann 2	480	5840
Law 6	564	6078
McKibben 5	600	5548
Paul 15	648	6080
Scott 4	600	5470
Sneed 12	600	6080
Surface 7	594	6056
HIGH ISLAND—		
Stanolind, Smith 1	92	5109
MAGNET—		
Atlantic, Cockburn B-4	100	5542
MANVEL—		
Jones et al, Bankers Mortgage 1-A	*	4100
NORTH CHEEK—		
Magnolia, Phelan 2	670	8682
TOMBALL—		
Humble, Kobbs C-1	*	5567
Walsh 1	524	5568
TURTLE BAY—		
Stanolind, Silva 2	610	6600
WEST BEAUMONT—		
Glenn H. McCarthy, Longe 1-C	¶1	4605
Stanolind, McCormick 6	557	5882
Sargl 6	32	5404
HARRIS COUNTY—		
Texas Gulf, Moore 1, Aldine area, W. C. R. R. Sec 18	*	7445
MATAGORDA COUNTY—		
Continental, Hawkins 2, Sheppard's Mott area, D. McCarthy sur	*	9210
NEWTON COUNTY—		
Houston Oil, Pevey Moore Lbr. Co. 1, Call area, H&TC sec 42	125	6918

*Failures; †Junked; ¶Million cu. ft. gas.

Mountain states reunion arranged for Houston show

Casper.—Both old-time and present Rocky Mountain oil men have planned a reunion at the Oil-World Exposition to be held in Houston from October 11 to 16, inclusive. This "get-together" of all who have ever worked in the Rocky Mountain territory will be at the Glenbrook Country Club on October 13, which has been designated by the exposition management as "Rocky Mountain Day." The afternoon will be devoted to the renewal of old friendships and the playing of golf by those wishing to do so. In the evening there will be an entertainment following a barbecue.

Those eligible and desiring to participate in the reunion are requested to send their names to W. L. Walker, 708 Texas Company Building, Houston. The cost per person is $3.50.

Arrangements are being handled by a committee composed of Frank Pryor, Stanolind Oil & Gas Company; A. S. Bailey, The Texas Pipe Line Company; W. C. Hill, Oil Well Supply Company; Louie Cron, Rector Well Equipment Company; W. L. Walker, The Texas Pipe Line Company; H. E. Hamilton, Mid-Continent Supply Company; Art Olson, Olson Drilling Company; Brad Mills, The Oil Weekly; Johnny Moran, Shaffer Tool Works; T. H. Andrews, Stanolind Oil & Gas Company; A. J. Hardendorf, Fredell Construction Company; L. L. Rector, Rector Well Equipment Company; J. M. O'Melveny, Patterson-Ballagh Company; Jack Moyer, Stanolind Oil & Gas Company; Ross Gwilliams, Ohio Oil Company; W. P. Knight, Cameron Iron Works, and C. L. Henry, Lee C. Moore & Company, Inc.

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SOUTH LOUISIANA

Two new oil fields due to be ushered in soon.

* * *

Electric log confirms showing in Raceland wildcat.

* * *

Jeanerette test gets salt water at 10,418 feet.

Lake Charles.—South Louisiana is witnessing one of the most active drilling campaigns in the history of the area. Three new oil fields were discovered last week and two more are in the process of being discovered.

Pass Show To Go Deeper

Amerada Petroleum Corporation and Louisiana Land & Exploration Company's South Coast Corporation 1, Raceland area, Section 34-15s-19e, Lafourche Parish, was coring in shale at 7559 feet last week after running an electrical logging device and showing four ohms and 155 milivolts from 7242 to 7279 feet. September 24 the test cored sand showing oil at this depth.

South Coast Corporation 1 will probably be drilled to 8000 feet and then a string of protection casing will be set. If no sands are found at greater depths then the hole will be plugged back and completed at 7279 feet.

Raceland is the second strike for the two operators in this area during the past year. The first was at Bayou Des Allemands, approximately eight miles east of the recent discovery. Amerada Petroleum Corporation and Louisiana Land & Exploration Company control around 40,000 acres in this area in three blocks. Two of the three blocks have resulted in oil fields. Preparations are being made to drill the third.

At Timbalier Bay, Lafourche Parish, Gulf Oil Corporation was preparing to complete State PP 3, Section 36-23-21e, after having plugged back from 7269 feet to 6971 feet because of a crooked hole. The well indicated it would open a new field when drill stem tests were made at 6749 and 6820 feet. The first test showed 1000 feet of 32 gravity oil, the second, 2520 feet of 31 gravity oil.

Four New Wildcat Locations

Of four new wildcats announced last week in the district probably the most important wildcat is Federal Petroleum Company's Sabine Tram 1, 2080 feet south and 580 feet east of the northwest corner of Section 25-8s-14w. This test is on the lower portion of the Conroe trend and has chances of producing from Lower Oligocene or Yegua formation. It is five miles west of Starks and near the Sabine River, which is the boundary line of Texas and Louisiana.

Three miles northwest of Lake Arthur and 1½ miles southeast of the discovery well at South Roanoke, Jefferson Davis Parish, Continental Oil Company made location for M. Van Greffin 1, 330 feet east and 660 feet north of the southwest corner of Section 32-10s-3w. This well may be drilled to 10,000 feet or deeper.

On the Woodlawn prospect, Jefferson Davis Parish, Union Sulphur Company's Calcasieu National Bank 1 is 1146 feet south and 1058 feet west of the northeast corner of Section 12-9s-8w. It is about 450 feet northeast of Strake Petroleum Corporation's 8505-foot dry hole and two miles east of Woodlawn.

Three miles south of Sulphur, Calcasieu Parish, Union Sulphur Company made location for J. A. Bell 1, 330 feet north and 330 feet east of the SWc SE¼ of Section 10-10s-10w.

Humble Oil & Refining Company made a second location at the new North Crowley field, Acadia Parish. Anton Ohlenforst 1 is 466 feet east of the southwest corner of a 78-acre tract and 466 feet north in Section 45-8s-1e. Humble Oil & Refining Company's Federal Land Bank 1, the discovery well at North Crowley, is shut in for storage. At last report there were only two 1000-barrel storage tanks at the well. The company is building additional storage.

Test Shows Salt Water

Herton Oil Company's Banta and Roanes 1, Jeanerette field, Section 40-13s-9e, St. Mary Parish, showed salt water and a trace of oil last week when casing was perforated from 10,418 to 10,444 feet. Cement has been squeezed through the perforations and another test will be made at the same horizon. Banta and Roanes 1 was drilled to 10,480 feet, being the deepest well in the field, and 845 feet of five-inch casing was cemented onto the seven-inch casing set at 9768 feet. Sand showing oil was cored from 9716 to 9773 feet, 10,194 to 10,215 feet, 10,280 to 10,290 feet, and from 10,355 to 10,375 feet. All the sands cored are below the regular producing sand of the field.

East of production at Lafitte, Jefferson Parish, The Texas Company was drilling at 12,000 feet in State Bayou Norman 1, Section 28-17s-24e, last week in a sidetracked hole. This is the deepest active drilling well in the Louisiana Gulf Coast. It may be drilled to 13,000 feet. The well indicated it would produce when a sand was found below 10,000 feet. The well is drilling in shale at present, and some geologists believe that after the bit goes through this shale an oil sand will be found. If so, this well may become the world's deepest producer.

North of production at Lafitte, The Texas Company's Madison Realty Company 1, Section 20-17s-24e, was down to 10,055 feet in sand showing oil. The sand was logged from 9993 to 10,055 feet.

Disappoints Again

Another test on Jefferson Lake Oil Company's Lake Peigneur 414, Jefferson Island dome, 12s-5e, Iberia Parish, at 6560 to 6575 feet showed 2000 feet of oil and 4500 feet of salt water. Cement was squeezed through the perforations and another test will be made from 6570 to 6576 feet.

SOUTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
IOWA—		
Magnolia, Waite 12	16	5223
JENINGS—		
Jolly Pet. Co., Crusel 1	960	7226
W. T. Burton, Robira 3	888	7276
S. Rhodes et al, Iowa-Jennings 2..	*	3315
Superior, Leckelt 5	132	7146
Moresi 2	368	7131
PINE PRAIRIE—		
Schleicher Pet. Corp., LeDenois 1..	*	3100
ROANOKE—		
Humble, DeVilbiss B-7	144	8718
STARKS—		
Lutcher Moore, Fee 2	200	4184

*Failures; †Junked; ¶Million cu. ft. gas.

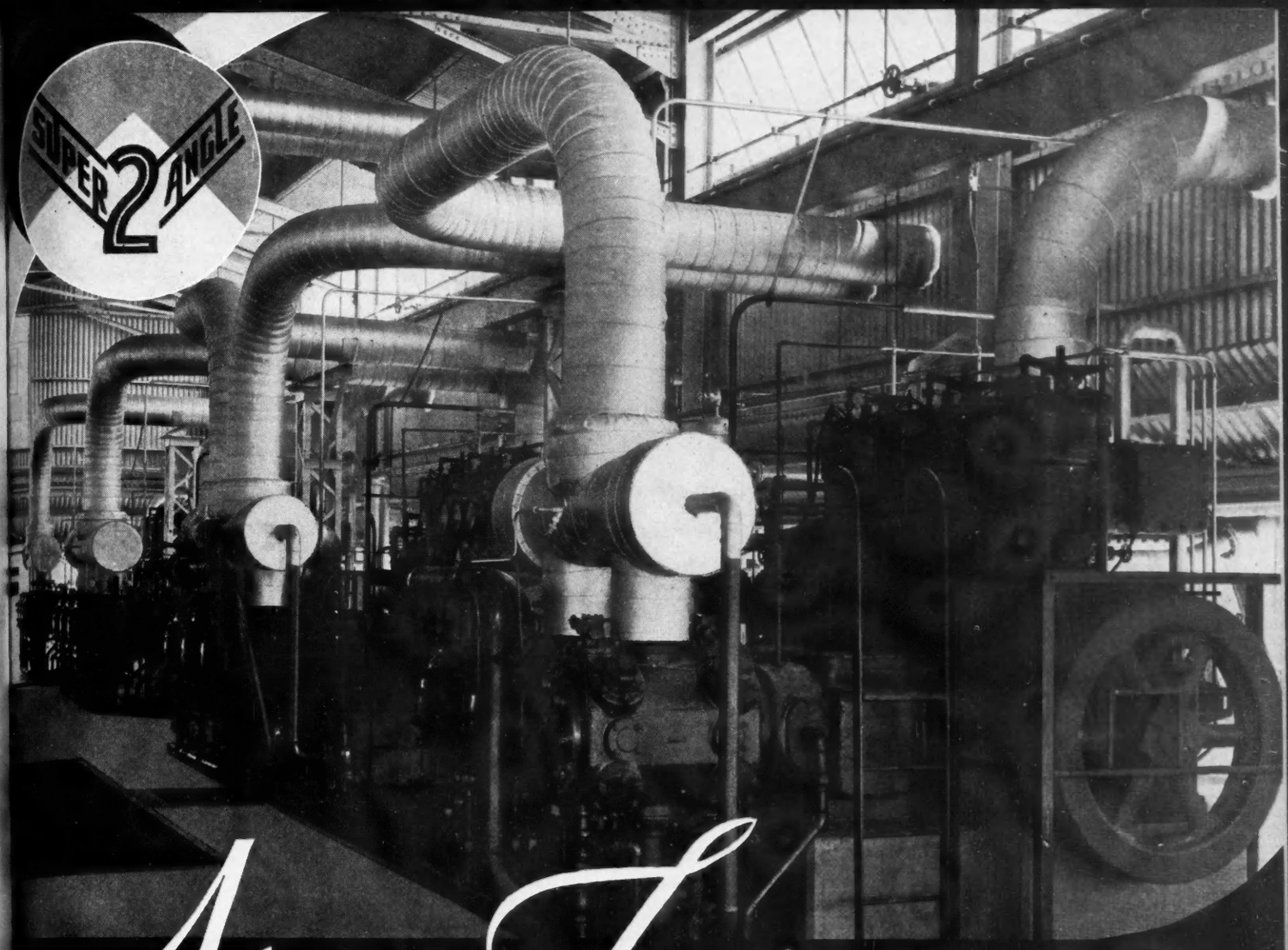
Entertainment features at Houston oil show

In addition to daily entertainment for visitors to the Oil-World Exposition in Houston from October 11 to 16, inclusive, evening programs are being completed to offer special events of interest. During the week, the United States Army Band will give concerts; and at night aviation searchlights will be operated outside the Coliseum by a group of soldiers and officers of the 69th U. S. Coast Artillery of Fort Crockett, Texas.

One of the outstanding entertainment features will be a special golf tournament which has been scheduled for October 13 at Brae-Burn Country Club. All entries will be confined to men actually connected with the industry. This includes oil company personnel, manufacturers, supply men and drilling contractors. A number of firms have arranged to present worthwhile prizes, and the Exposition is giving a first prize.

On the night of October 14 there will be an all-star, oil-show wrestling match at the Houston City Auditorium. The Exposition management has purchased 1000 tickets for this affair, which will be resold to visitors and exhibitors at cost, and has reserved 500 additional seats in order to make sure that everyone interested may be able to see the match.

A football game between Rice Institute and Tulsa University will be held October 16. A large number of tickets are provided for numerous guests from out of town.



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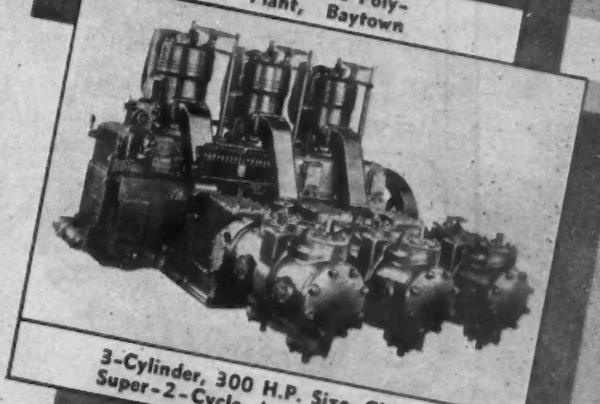
Exterior View, Humble Polymerization Plant, Baytown



3-Cylinder, 300 H.P. Size, CLARK Super-2-Cycle Angle Compressor

CLARK

Arkansas end of Rodessa has 33 active operations.

* * *

Lisbon operators worried over prospective shutdown.

Shreveport.—The Miller County, Arkansas, extension of Rodessa failed to enter the completions column last week but had 4 wells testing and 33 active operations under way.

Two and a half miles east of production in Miller County, conflicting reports were heard relative to Burford's August 1, SW SE NE SW 8-20-27. One report of this test, which has been drilled "tight," was that it was shut down at 6170 feet after failing to find any saturated formation, and the other was that it had logged 17 feet of saturation and was arranging to set a string of casing. Similar reports were heard of the same operator's Garver-Means 1, C SW NW 11-20-27. One report was that the well was shut down at 6100 feet, the other was that at this level it showed 3 joints of mud in a drill stem test and was coring ahead below 6200 feet.

Just across the Arkansas line in Louisiana, Magnolia Petroleum Company was testing G. W. Hardy 1, NWc S½ of fractional Section 1-23n-16w, between production in the Arkansas offshoot and the main part of the field in Louisiana.

The highest pressure area so far found on the Cass County, Texas, side of the Rodessa field is around Magnolia Petroleum Company's W. M. Hall 1, Wilson Robinson Survey, where the pressure is 2275 pounds. There is a low pressure area around Showers & Moncrief's Stallcup 1, Robert Trammell Survey, where the pressure is 1011 pounds; around United Production Corporation's J. T. Stewart 1, James Young Survey, where the pressure is 1545 pounds, and around United Production Corporation's J. A. Bewley 2, H. Holbert Survey, where the pressure is 1700 pounds.

The Lodi nose of the Rodessa structure added one well last week, and the Jefferson area gave indications of having another early producer. In the Lodi sector, United Production Corporation's Hutchinson 2, A de los Santos Coy Survey, was completed at 6116 feet, flowing at first 60 barrels of oil per hour through 5/16-inch choke with tubing pressure 75 pounds and casing pressure 400 pounds. Later the well was flowing 35 barrels per hour through same size choke with tubing pressure 600 pounds and casing pressure 825 pounds.

North of production in this area, Arkansas - Louisiana Gas Company's Fant 1, L. P. Cadenhead Survey, is swabbing about 25 barrels of oil daily at plugged-back depth of 6158 feet.

In the Jefferson area, Shell Petroleum Corporation's first well there, Lizzie Henderson 1, R. Bennington Survey, was arranging to drill plug and test at total depth of 6014 feet after final casing string was cemented at 5975 feet. Saturation was logged from 5974 to 5994 feet.

Aside from Miller County, Marion County is the most active part of Rodessa.

Lisbon extended as operators fear shut-down

Shreveport.—What effect a shutdown in the Lisbon field will have, if another outlet is not secured soon, in view of Gulf Refining Company's reduction of its purchases there October 1 to 5000 barrels, was a topic of discussion among operators in that field last week.

Two schools of thought prevail on this question. Some believe a shutdown will materially damage present producing wells and would necessitate re-acidization when they are opened. Others believe the shut-down will be of benefit to many wells, especially those drilled in the early days of the field when a 10-acre space rule was in effect. Twenty acres is the present space rule. The latter believe that this would give wells a chance to build up bottom-hole pressures which have sunk from an original numerical average of 1900 pounds to 1215 pounds for 116 wells. The weighted average for the field dropped to 50 pounds for the 30-day period ending September 10.

Lisbon to September 15 from 102 wells had produced a cumulative yield of 1,560,089 barrels.

Six wells were officially completed in Lisbon last week, all in the Claiborne Parish part of the field. J. R. Bevill and Shreveport Oil Corporation's Alex Edmonds 1, NE NE 16-20n-5w, 3 miles southwest of production, pumped 100 barrels in 24 hours from total depth of 5413 feet, and then encountered mechanical trouble and was pulling tubing.

One mile west of production, Lisbon Oil Company's Burgess 1, NE SE NE 3-20n-5w, was swabbing with 3000 feet of oil in the hole after swabbing and

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flowing as much as 14 barrels per hour for several days. Plugged-back depth is 5325 feet.

Production was extended ¼ mile south last week when Hollyfield & McFarlane completed H. W. Patton 1, NE NE 2-20n-5w, flowing 35 barrels per hour at total depth of 5246 feet. It is the first well in this section. The largest well of the week completed was A. O. Olsen's T. E. Patton 3, Section 30-21n-4w, completed at 5185 feet flowing 85 barrels the first hour.

Two outside locations staked at Cotton Valley

Shreveport.—Two new locations for outside tests to the lower Marine 8000-foot horizon in the Cotton Valley field, Webster Parish, were announced last week. Magnolia Petroleum Company about midway between the recently 1½ mile southwest extension gas-distillate producer of Standard Oil Company at E. L. Stewart 1, SE SE 32-21n-10w, made location for T. Critchton 1, C NE NW 33-21n-10w. Magnolia recently acquired 140 acres around this location for a cash consideration of $35,000 and an equal payment from production.

One and one-half miles southeast of production, Stanolind Oil & Gas Company on a recently acquired 720-acre lease made location for the first of three tests, Pardee Company 1, C SW NE 36-21n-10w.

Wright, Harris and associates of Overton, Texas, started moving in materials for C. B. Scott 1, NE NE 32-14n-13w, DeSoto Parish, on a thousand acre block northeast of the old shallow Holly field. It will be a 3000-foot test.

Howard M. Jones has assembled approximately 7000 acres centering around Section 27-13n-8e, Tensas Parish, for a test to begin by December 1.

Standard Oil Company of Louisiana last week leased south half SW, south half of north half of SW and west half SW SE 2-23n-16w, and NW NW 11-23n-16w, Rodessa district, for $41,100 cash and $102,750 from three-sixteenths of seven-eigths of production.

H. L. Hunt and Seaboard Oil Corporation made location for the second of a series of three 6000-7000 foot tests on their block in the Bear Creek area, Bienville Parish, where two gas-distillate wells are producing. The new location is Federal Land Bank 1, center SW 10-16n-6w. They are rigging.

Octane building 3000-barrel refinery at Cotton Valley

Shreveport.—An oil refinery of 3000 barrels capacity is under construction at Cotton Valley by the Octane Oil & Refining Company of Longview, Texas.

Sylvester Dayson, president of the company, signed one of the contracts sponsored as part of Governor Richard W. Leche's industrial expansion program for Louisiana, granting a 10-year tax exempt period.

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SINCLAIR

Rodessa Started Campaign That Has Resulted in 13 Fields

A GEOPHYSICAL, leasing and drilling campaign unparalleled in the history of North Louisiana, Arkansas, and the border counties of East Texas, resulting from discovery of oil at Rodessa, Louisiana, on July 16, 1935, by United Gas Public Service Company's I. L. Young 1, Section 21-23n-16w, has resulted to date in the discovery of 13 new oil or gas producing areas or indications that they will produce. Ten of these new discoveries are from the Trinity and one from the Permian lime.

Drilling Deeper

Prior to discovery of oil in the Glen Rose of the Trinity series, at Rodessa few wells in North Louisiana, Arkansas, or East Texas border counties had gone below 6000 feet and only three tests had gone to 7000 feet or deeper. These three tests were: Magnolia Petroleum Company's McCook and Hibbler 1, Section 21-21n-10w, Webster Parish, Cotton Valley district, 7002 feet; R. L. Gay's Long-Bell Lumber Company A-1, Section 10-18n-13w, Sabine Parish, 7154 feet; and Lion Oil Refining Company's Hays A-9, Section 4-16-15, Union County, Arkansas, Smackover district, 7255 feet in Permian salt. Started before but completed one month after Rodessa's discovery was Gulf Refining Company's Werner 49, Section 5-16-16, at 7973 feet.

Aside from extensions of Rodessa into Texas and Arkansas, the most important of the new fields following in the wake of Rodessa's oil discovery, has been the Lisbon field in Claiborne and Lincoln parishes, producing from the basal Glen Rose lime at 5300 feet. The discovery well was completed December 25, 1936, by E. T. Oakes, H. D. Easton and associates in Patton Estate 2, NE NE 1-20n-5w. There are now over 70 producers in the field with a daily average combined yield of 13,425 barrels. Total production from the field to August 11 was 1,086,000 barrels.

Lide, Greer, Marr and Brown opened a new gas-distillate field in Lincoln Parish, Simsboro-Montcalm district, with completion of Fowler 1, Section 10-17n-4w, in Glen Rose lime at 5303 feet, and in the same section completed Simmie Gardner 1, as a gas-distillate well in the Travis Peak at 6576 feet.

The same operators opened the Driscoll district, Bienville Parish, as a Glen Rose gas-distillate producing area with Davis Lumber Company 1, Section 12-16n-5w, in the Glen Rose at 6141 feet; and later completed Smelley 1, Section 18-16n-4w, in the Travis Peak at 7180 feet, as a gas-distillate producer. In the same parish, in what is known as the Bear Creek district, Seaboard Oil Corporation has completed a gas-distillate producer in the Glen Rose lime in McGee 1, Section 3-16n-6w.

Three gas-distillate producers have been completed at the 5500-5600 foot Glen Rose lime horizon in the Sibley district, Webster Parish, the discovery well being J. P. Evans' Crichton 1, Section 35-18n-9w.

Ohio Oil Company has found the Travis Peak horizon in the old Cotton Valley field, Webster Parish, productive of oil in one well, R. L. Holloway 6, Section 23-21n-10w, which is producing from 5550 feet. The same company found the lower Marine to carry a large body of productive sands below 8100 feet in the same district, and there are at present 16 producing gas-distillate wells in that field in this deeper horizon, the deepest producing zone in North Louisiana, Arkansas, or East Texas border counties.

Both oil and gas production has been found in the basal Glen Rose horizon at 5100-5200 feet on the flanks of the Sligo field, Bossier Parish, but the oil production has been limited to a comparatively limited area around the flanks of the structure, which is in township 17, ranges 11 and 12 west.

DeSoto Oil and Gas Company (R. O. Roy and associates) has completed a Glen Rose gas-distillate well in the shallow Bisteneau gas area, the Glen Rose discovery well being in Section 15-16n-10w.

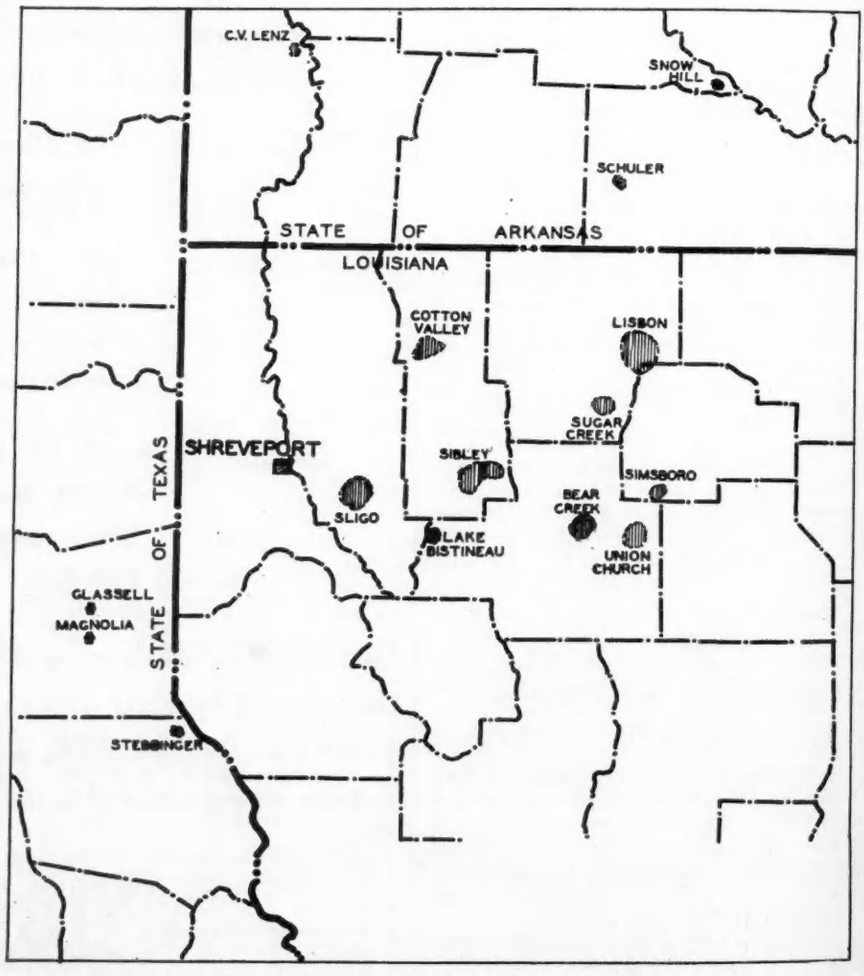
United Gas Public Service Company, Standard Oil Company of Louisiana and Sugar Creek Syndicate's unitized field at Sugar Creek, Claiborne Parish, which hitherto had produced gas-distillate from the Glen Rose, during the autumn of 1936 was opened as a gas-distillate and oil producing area from the Travis Peak at 5600-5700 feet. However, only three oil wells have been completed in this lower horizon of this field to date.

Possibilities of production from the Travis Peak were opened in the Blanchard gas field, Caddo Parish, when United Gas Public Service Company completed Wheeler A-1, Section 16-18n-16w, at 5911 feet was a small gas-distillate well. The well later was plugged back and completed as a small gas-distillate well in the Glen Rose.

While chief interest in post-Rodessa exploration has been centered on Trinity horizons, one oil well that may herald a new field, was recently completed in the Paluxy by Pullman Oil Company (M. J. Grogan and associates) in Ramsey A-1, Section 36-11n-11w, DeSoto Parish, at the 2950 foot level. Two subsequent wells were failures and a third made only gas and water and a small amount of oil. Other tests in the area are still drilling.

Four Arkansas Fields

Four new producing fields have been found in south Arkansas since July,



New fields in North Louisiana-Arkansas discovered since Rodessa.

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1936. The Schuler field, Union County, has 13 oil producers in a series of five lenses between 5500 and 6000 feet in what is variously identified as basal Travis Peak or upper Permian. The first of Schuler's producers was completed by Lion Oil Refining Company in Edna Morgan A-1, Section 18-18-17, that had been deepened to 5559 feet from 4270 feet to which level it had been drilled by Phillips Petroleum Company. Since the present producing horizon has been found extremely lenticular two tests at present are being drilled to the "Big Lime" of the Permian.

First Permian lime production in North Louisiana, Arkansas, or East Texas border counties was found in Phillips Petroleum Company's Reynolds B-1, Section 27-15-15, Ouachita Parish, completed at 4926 feet in Permian lime as a gas-distillate well. However, after four other wells in this area were completed in this horizon salt water encroachment halted additional development. But, the fact that Permian lime carries production in this territory was definitely established and added impetus to deeper drilling throughout the three-states' area.

Two miles northeast of the main part of the old Garland City field, Miller County, Arkansas, C. V. Lenz, who had drilled the discovery shallow well of that field in Section 24-15-26, in that same section completed a 100 barrel oil well last year at 4215 feet in Dale 7, but E. H. Moore, Incorporated, who bought the new Glen Rose well and surrounding acreage, failed to get production in two later tests in the same section, one of which explored deeper horizons.

A shallow field, producing from both the Nacatosh and Tokio horizons at 1200 and 2200 feet respectively was opened near Troy, Nevada County, not far from the old Irma shallow field, by Benedum and Trees Oil Company in Grove Land Company 1, Section 10-14-20.

East Texas Border Counties

Four new structures were proven capable of production in East Texas border counties outside of Cass and Marion counties, which are regarded as extensions of Rodessa. Two of these are in Panola County. In this county, two Glen Rose gas-distillate wells were completed at the 5600 foot horizon by Glassell and Glassell, the first, Frost Lumber Company 1, Mary Potts Survey. Three miles east of Carthage, county seat of Panola County, Magnolia Petroleum Company completed E. A. Hull 1, Thomas Applewhite Survey, at 5960 feet in basal Glen Rose and is exploring lower Marine possibilities in a second test.

In Shelby County near Joaquin, H. A. Stebbinger and associates completed two gas-distillate producers on Pickering Lumber Company acreage and later sold their holdings to Portex Oil and Gas Company who have added a third such producer at the 5100-5200 foot horizon of the Glen Rose.

A few miles farther south in the same county, Redditt and Gray completed Pickering Lumber Company 1, Stephen English Survey, as a small gas well in the Paluxy horizon at 4109 feet.

ARKANSAS FIELDS

Two deep wildcats assured for Lafayette and Ouachita

El Dorado, Ark.—Two deep wildcat tests for south Arkansas appeared assured last week in Lafayette and Ouachita counties.

In Lafayette County, Erwin and Leach have assigned 4000 acres centering around Section 9-19-26 to Harper and Turner of Oklahoma City for a 6500-foot test. In this area Hunt Oil Company, Lion Oil Refining Company, and Root Petroleum Company hold considerable acreage.

In Ouachita County, Luttrell and Goff have assembled approximately 3000 acres around Section 25-14-18, for a Permian lime test which is to start by October 15.

NORTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
CLAIBORNE PARISH (Lisbon)—		
Gulf, S. E. Tatum 2, 32-21n-4w	480	5309
Harry Hanbury, R. Vaughan C-2, 25-21n-5w	1248	5254
Hollyfield & McFarlane, H. W. Patton 1, 2-20n-5w	840	5246
Olsen et al, J. T. Bean 2, 32-21n-4w	1200	5141
T. E. Patton 3, 30-21n-4w	1800	5185
Shreveport Oil Corp. and J. R. Bevill, Alex Edmonds 1, 16-20n-5w	100	5413
FRANKLIN PARISH—		
Tensas Delta Oil Corp., Woodland 1, 22-11n-9e	*	6500
LINCOLN PARISH—		
Freeman W. Burford, Hanna 1, 34-18n-4w	*	6612

*Failures; †Junked; ¶Million cu. ft. gas.

Cotton Valley distillate extension yield is sold

Shreveport.—H. L. Hunt Oil Company is buying the distillate production from Standard Oil Company of Louisiana's and A. G. Oliphant's E. L. Stewart 1, Section 32-21n-10w, recently completed mile and a half southwest extension of the lower Marine horizon in Cotton Valley field, Webster Parish. Hunt is paying $1.35 per barrel and is said to be shipping the 62 gravity distillate to Canada. The extension well, permitted to catch up some back allowable, has produced as high as 460 barrels of distillate daily, it is reported.

Ohio Oil Company is selling its Cotton Valley distillate for the same price to Grogan Oil Company, which is transporting it to its refinery at Shreveport, for blending. Magnolia Petroleum Company is buying the production of Woodley Petroleum Company's two Cotton Valley distillate wells, piping it to Rodessa and thence to Beaumont, Texas, with crude oil.

Louisiana Commission issues 35 permits for new wells

Shreveport.—Thirty-five drilling permits were authorized last week by the Louisiana Conservation Commission. Twenty were in North Louisiana, divided among the following parishes: Bossier 1; Caddo 8, including 3 in Rodessa; Claiborne 1 (Lisbon); La Salle 1; Ouachita 1; Morehouse 3; Sabine 1; Union 4. Those in South Louisiana were divided among the following parishes: Acadia 6; Calcasieu 3; Cameron 2; Plaquemines 1; St. Martin 2; Terrebonne 1.

Four permits include two in Miller County extension

El Dorado, Ark.—Four drilling permits were authorized last week by the Arkansas Board of Conservation. Two for the Rodessa extension in Miller County were: Hunt Oil Company, Mabel Ann Wommack 4, 410 feet west and 330 feet south NEc SE SE 10-20-28, and J. H. Henry and R. H. Long, E. B. Mitchell 1, 330 feet north and west SEc NE NE 10-20-28. The other two permits were: Calhoun County, Hayner, Reaves and Hose, Brandon 1, 451 feet east and 29 feet north SWc NW SW 34-11-13; C. W. Hayes and associates, State of Arkansas 3, south 65 degrees west from NWc Block 23, town of Fulton being part of north half 20-13-26 (on sand bar or in bed of Red River), Hempstead County.

ARKANSAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
UNION COUNTY—		
W. D. Wingfield, Southern Kraft 1, 18-16-14	†	5330

*Failures; †Junked; ¶Million cu. ft. gas.

SOUTHEASTERN STATES

Will Durant obligated to spud Mississippi wildcat

Jackson, Miss.—William C. Durant, former automobile manufacturer who has been drilling a wildcat in Lincoln Parish, Louisiana, is obligated to spud by next October 25 on a 6000-foot wildcat in Hinds County, Mississippi, on a block of approximately 5000 acres recently acquired from R. R. Chichester and associates. The block centers around Section 30-6n-4w, about three miles east of the village of Edwards.

Having cemented 6⅝-inch casing, Charles Green and associates are ready to test a formation at 2378-2410 feet that showed resistivity and porosity when electrical logging device was run recently in Julian Taylor 1, Section 4-3n-1e, Wilkinson County, southwest Mississippi, "in the trend."

Joe Modisett and associates are drilling below 4702 feet in black shale and shells in McCorvey 1, SE SW SW 20-9n-2w, Choctaw County, west Alabama, on the Hatchetigbee anticline, a proposed 8000-foot test. Nine-inch casing was recently cemented at 3700 feet.

EASTERN FIELDS

Illinois may pass laws for control of production.

* * *

Offset to Pennsylvania "gusher" nearing oil level.

Pittsburgh.—Interest in the Illinois Coal Basin area was focused on Carter Oil Company's Mary Miller 1, NW NW Section 12, Township 8n-3e, Louden, Fayette County, where desperate efforts were being made to complete.

The well was shot with nitroglycerin September 25 in an effort to loosen the oil bearing sand found at 1607 feet. The explosion caused a cave-in of the walls about 200 feet above the bottom and 12 feet of casing collapsed. Late in the week preparations were being made to swab and install a pump. Preliminary examination of the sand in which the test is bottomed indicated a well of approximately 150 barrels.

Kingwood Oil Company announced the location for its first Illinois test during the current drilling campaign on the Arthur H. Bartles farm, Mason Township, Effingham County. The location is on a block of leases in which the Kingwood and Carter Oil Company are said to be jointly interested. The drilling contract calls for a depth of 3500 feet if necessary.

Governor Henry Horner last week announced that if oil production in Illinois continues to boom, the subject of legislation for production control may be included in the call for a special session of the general assembly when one is issued. The determining factor, he said, will be whether production increases to a point where emergency legislation on the subject is needed. If delay is possible, the matter will be left to the next regular session.

In the Bradford-Allegany region, attention is once more focused on Music Mountain, 9 miles south of Bradford, Pennsylvania, where Niagara Oil Corporation a month ago brought in the first Pennsylvania oil gusher of many years. Minard Run Oil Company's offset is nearing the 1400-foot level, comparable to the level at which the strike was made. The Minard well is located 200 feet lower, indicating production may be reached before 1600 feet, the approximate depth of the discovery well.

Impressions of New Illinois Play

By DORSEY HAGER, Consulting Geologist

THE contrast between the new methods of oil field development and the old is strikingly brought out in Illinois. The Casey and Robinson oil areas, with their standard tool equipment, old types of power, with shackle rods and pumping jacks, are in marked contrast to the new Cisne, Clay City and Noble oil fields in the Illinois Basin. In the latter area the most modern rotary equipment is used in drilling; steel derricks instead of portable cable tool outfits. Oklahoma, Texas, and Kansas drillers are on the job—men foreign to the early Illinois development. Wells are drilled nearly 3000 feet deep in 10 days. When completed the wells are tubed and allowed to flow under modern methods.

Seismograph Successful

Drilling technique is, however, only one phase of this interesting development. More important is the part which technical guidance is playing in the locating of the oil fields. The seismograph is considered the all-important feature in outlining the places to drill. To date four new fields claim seismography as their father. While some credit can justly be claimed for subsurface geological information as a starting point in three instances, the fourth—the Ohio Oil Company well at Noble—was a pure reflection shooting success.

How successful the seismograph will prove in other areas remains to be seen. Already numerous conflicts in shooting results have arisen, three among major concerns. Seismography is being exploited, it is true. Every area shot over is said to be on a seismograph high. Unfortunately the layman does not discriminate, and believes every area shot over must show a structural high. Enough has been done to demonstrate the value of shooting. However, in a few areas seismograph results can be checked by surface geology, and in nearly all cases by shallow well testing. The structures reflected by the Pennsylvanian beds can be outlined with shallow tests at depths of 100 to 200 feet. A shooting high can be checked with a few well placed holes and either proven or eliminated. Further, any sub-surface evidence of highs can be readily checked in detail by shallow test holes to a key bed. Undoubtedly, as shooting conflicts continue, much shallow well testing will be employed to check the structures.

Expect Many Fields

In time, sufficient sub-surface evidence will be available to outline trends and to substantiate shooting. Illinois is just beginning a campaign of expansion that should result in the opening of 100 or more new fields. The state has produced 445,000,000 barrels of oil to date, and should readily produce twice that quantity from new fields.

Drilling costs, under contract, range from $3.75 per foot at Patoka to $5.50 per foot in Clay County. Such costs will be lowered appreciably due to competition. Deep testing, to 6000 and 7000 feet, should be done with combination tools, drilling to the St. Genevieve with rotary tools, and with standard cable tools for the 3000 feet or more below, which is mainly limestone, with much chert (impure quartz) throughout. Production in the deeper horizons in the Basin is problematical.

Some producers and operators anticipate a heavy production from the St. Peter's sandstone because of its relationship to the Wilcox of Oklahoma. There has been a number of tests to the St. Peter's in the Monroe County field, in Schuyler County, and three tests have been drilled in Clark County, two to depths of over 3411 in the producing fields, and one to 5190 in Lawrence County, all tests being negative, and at least four being on structure. A similar number of structures in Oklahoma or Kansas would hardly be tested without opening one or more Wilcox fields. While it may produce, I see little encouragement for the St. Peter's sandstone. The lower Mississippian, the Niagaran, Devonian and Trenton beds of the Ordovician should all produce oil in the deep Illinois Basin, and tests of such horizons, 5000 to 6000 feet deep, are justified.

Prices Are High

Illinois is not going to prove a flash in the pan; it has real oil possibilities. Too many oil operators are rushing in and selecting drilling blocks without careful checking, and the resulting dry holes will slow down operations. This is a healthy condition, as prices are far too high. Royalties are as high as $200 to $300 base around drilling wells, and $20 to $30 bases are usually 50 miles from production.

Leases are few and range from $1 to $50 per acre, as high as $50 being paid for tracts 10 miles from production. The influx of hundreds of lease buyers from nearby towns and cities has pushed prices out of reason. A few remaining drilling blocks may be obtained on a reasonable basis for a well, but unless such blocks are checked by seismograph or by shallow well testing, drilling will be blind.

At present there is too much hysteria in Illinois. A crop of dry holes is

much desired to bring people to their senses, and operations can then proceed in an orderly fashion.

The Clay City field in Clay County as now outlined appears to cover an area 9½ miles long and 2½ to 3 miles wide. It should have at least 12,000 acres of productive area, perhaps more. The Noble field in Richland County now looks to be as large as the Clay City field, taking the new developments into consideration. Two major fields covering 20,000 to 25,000 acres for both are clearly evident. Such fields should produce 150,000,000 barrels of oil at least. These fields are far above average size, but others of such size will be found.

EASTERN FIELDS

Completions

ILLINOIS

Company, Well and Location	Init. Prod. Bbls.	Depth
CLAY COUNTY—		
Pure, Oscar Poppe 6	105	2978
Oscar Poppe 7	586	3000
J. H. Smith 1	70	2947
CLINTON COUNTY—		
Will's et al, Vares 1	*	1429
MARION COUNTY—		
Star Well Syndicate, B. Belcher 1	85	1451
Sadie Nattier 1	20	1444
Adams Oil & Gas Co., Wassem 5-A	85	1430
Ingles 1	60	1422
Glenn Merryman 10	60	1434
Hempen & Burgess, Rogier 1	80	1441
Cypress Oil & Gas Co., Adams 4-C	50	1455
Ray Brown et al, Easton 1	45	1453
Cartier Oil Company, Metzger 1	*	3671
RICHLAND COUNTY—		
Mammoth Producing & Refining Co., Leo Heitz 1	750	3003
WAYNE COUNTY—		
Benedum-Trees, Nugent & Rose 1	*	3313

OHIO

Company, Well and Location	Init. Prod. Bbls.	Depth
ATHENS COUNTY—		
C. W. Nuzum et al, James Rogeski 2	¶	1645
Gibson et al, J. H. Cunningham 9	*	1015
COSHOCTON COUNTY—		
Pure, G. W. Crawford 14	75	3154
CUYAHOGA COUNTY—		
W. Shear et al, Whiskey Island 1	¶.08	....
HENRY COUNTY—		
M. L. Stevens, Libbie Sempsel 2	25	1750
HOCKING COUNTY—		
Preston Oil Co., Sunday Creek Coal Co., 1645	25	3568
HOLMES COUNTY—		
David Shafer, M. Loguillon 1	*	3596
LICKING COUNTY—		
North Fork Oil Co., J. G. Williams 10	7	775
Wehrle Gas Co., Benson Nethers 11	2	835
F. Woolard 2	*	1390
Ohio Fuel Gas, Charles Fisher 1	¶1.92	2990
Upham Gas Co., Hugh Banbury 1	*	2840
MEDINA COUNTY—		
E. R. Edson & Son Co., C. L. Billman 3	*	525
MEIGS COUNTY—		
Meigs Development Co., Lafayette Romine 6	¶.25	850
T. W. Bengel, Albert Heilman 5	*	966
MONROE COUNTY—		
Harry Dixon, James Newell 1	*	1843
MORGAN COUNTY—		
G. E. Morris et al, W. C. and Daisy Harker 4	2	503
Fairmont Gas Co., R. B. Piermont 2	*	870
MUSKINGUM COUNTY—		
Hopewell Gas & Fuel, Aldemar Harrop 5	¶.52	4130
NOBLE COUNTY—		
Ohio Fuel Gas, Davis & Brown 1	¶.43	1690
Barnsville Development Co., Margaret Gibson 2	¶.01	1675
R. L. Smithberger, Charles Parks 2	*	1095
PERRY COUNTY—		
Preston Oil Co., Sunday Creek Coal Co., 157	¶.60	1100
Hopewell Gas & Fuel Co., Michael Emmert 2	¶.43	883
PUTNAM COUNTY—		
Brown et al, L. V. McCoulough 1	80	4104
SANDUSKY COUNTY—		
W. J. Dempsey, Chester Roberts 1	*	1312
SENECA COUNTY—		
J. H. Murphy & Sons, Abbott 1	¶.01	1522
WASHINGTON COUNTY—		
Otto Heldman, Jennie D. Cuthbert 5	¶.24	1090
Best Run Oil & Gas Co., Jacob Best 2	¶.21	1100
McTaggart et al, D. W. McFarland 6	¶.12	1950
S. S. Stewart et al, James R. Heslop 10	¶.10	1065
Lester Swingle et al, J. D. Murdock 4	*	571
J. D. Murdock 5	2	575
Ed Cline, Dan Torpy 6	*	1674
Greenless & Dow, James M. Dow 12	*	1890
McIntyre et al, Julius Greenwood 9	*	702
E. W. Cline, Coal Lands 17	*	1663

WEST VIRGINIA

Company, Well and Location	Init. Prod. Bbls.	Depth
CABEL COUNTY—		
C. C. Wolfe et al, C. F. Freeman 1	¶.27	2979
United Fuel Co., J. W. Gill 4671	¶.17	3432
Kentucky-West Virginia Gas Co., J. E. Morrison 1	¶.09	3664
CALHOUN COUNTY—		
F. F. McIntosh, Seymore Settles 1	3	2278
Henderson Oil Co., E. R. Wilson 1	¶1.00	2264
GILMER COUNTY—		
Bush & Ferrell, Goff Summers 1	¶.30	1665
Wolf Penn Oil & Gas Co., W. J. Radcliff 1	¶.25	1832
Phillip D. Phillips, Belinda R. Fetty 4	¶.06	2331
P. P. Gunn et al, A. H. Stump 1	¶.05	1912
HANCOCK COUNTY—		
W. J. Hudson, Cabel Brice 1	5	970
HARRISON COUNTY—		
Hope Natural Gas, L. H. Coffman 1	¶	2244
KANAWHA COUNTY—		
United Fuel Gas, George Creek Land & Mining Co 4742	¶.79	4862
LINCOLN COUNTY—		
Adkins, Morris et al, Creeley Adkins 2	¶.08	3495
MONONGALIA COUNTY—		
I. J. Eddy & Co., C. P. Michael 1	¶.65	3538
Null & Moorehead, H. Barrackman 1	¶.11	3652
PLEASANTS COUNTY—		
Neely & Morrison, Chas. Colvin 1	*	1793
RITCHIE COUNTY—		
West Virginia Investment Co., Jos. Parks 21	8	2002
Devil Hole Oil & Gas Co., Ritchie Lumber Co. 3	5	1690
H. N. Rinehart, T. E. Moore 9		1835
McBurney et al, M. B. Nutter 5	*	2000
ROANE COUNTY—		
F. F. McIntosh, McIntosh & Norman 4	5	....
Witago Oil Co., H. E. Guthrie 1	*	1870
WAYNE COUNTY—		
Mountaineer Gas Co., Otto Adkins 1	¶2.61	3210
Jackson & Woodall, P. W. Sansom 1	¶1.25	3188

KENTUCKY

Company, Well and Location	Init. Prod. Bbls.	Depth
DAVIESS COUNTY—		
Globe Oil Co., W. R. Russell 3	*	....
FLOYD COUNTY—		
Kentucky-W. Va. Gas Co., Grover Jervis 555	¶2.09	1395
HANCOCK COUNTY—		
C. D. Walker, Marion Boling 1	50	360
Ellen House 3	30	358
J. C. Ellis, Thelia Richards 13	50	....
Hallie Mason 8	10	340
Frank Damron, T. J. Brown 4	¶.80	519
Kentucky Natural Gas, Mrs. Kate Humphries 1	*	798
KNOTT COUNTY—		
Inland Gas Co., Ritter Short 1	¶ 19	3009
LEE COUNTY—		
Central States Oil Co., Marion Shoemaker 5	10	1190
McLEAN COUNTY—		
Cumberland Petroleum Co., D. S. Butterfield 5	*	1170
MAGOFFIN COUNTY—		
McKinney Wheeler, T. M. Tackett 1	1	938
MARTIN COUNTY—		
Kentucky-W. Va. Gas Co., C. W. Preece 5225	*	1600
OHIO COUNTY—		
Kentucky Natural Gas Co., R. P. Cox 4	¶1.30	1130
V. M. Amsler, Chas. Downes 3	*	395
Geo. Lavigne et al, J. T. Schu'tz 1	*	625
Leper Oil Co., Ernest Bartlett 1	*	1020
Frank Bondell et al, M. S. Bartlett 5	*	456
POWELL COUNTY—		
Wireman Bros., J. Belomy 2	*	....

*Failures; †Junked; ¶Million cu. ft. gas.

NEW MEXICO

Vacuum success encourages further exploration.

★ ★ ★

Lower well allowable may curtail drilling.

Hobbs, N. M.—Encouraged by the recent development of natural flow of oil from the 4600-foot lime by its third test for the Vacuum pool, Lea County, Magnolia Petroleum Company will continue exploration work on its 5300-acre block so as to attract a pipe line connection. Operations will be shifted 1 mile to the south in drilling State-Bridges 3, C SW SE 23-17s-34e.

Performance of Magnolia Petroleum Company's State-Bridges 2, C SW SE 14-17s-34e, about ½ mile southwest of the discovery, affords a possibility of the Vacuum area becoming the next important drilling center for the county. This third completion has been listed as a completion, and will not be acidized or shot. The well flowed 582 barrels of 36 gravity oil initial through 2-inch line on casing after drilling broken pay, consisting of lime at 4435-44 feet, sand at 4510-13 feet, followed by lime at 4562-93 feet, with an elevation of 4031 feet. Operations were halted while in the saturated lime section. The well is credited with having flowed 670 barrels oil in 12 hours while run-

NEW MEXICO

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
EDDY COUNTY—		
Franklin Pet. Co., Nelson 1, near nwc 4-18s-30e	*	2953
H. & W. Drl. Co., Storey 1, c nw se 31-19s-30e	*	1722
Superior, Foster 1, se se ne 17-17s-31e	*	3608
Western Drl. & Engineering Co., Western 1, ne nw nw 26-17s-29e	100	2831
LEA COUNTY (Eunice)—		
Atlantic, State 2-P, c ne nw 25-20s-36e	1000	3853
T. P. Coal & Oil, State 5-A, Acct. 2, c ne ne 7-22s-36e	28,488	3787
LEA COUNTY (Hardy)—		
Ohio Oil, W. H. Turner 2, sw nw se 29-21s-37e	15	3800
LEA COUNTY (Langlie)—		
Woodley Pet. Co., Wm. Cook 2, c se se 28-25s-37e	240	3281
LEA COUNTY (Mattix)—		
Continental et al, E. E. Jack 1, c nw ne 27-24s-37e	1500	3550
LEA COUNTY (Monument)—		
Continental et al, H. M. Britt 7-B-18, c sw se 18-20s-37e	600	3878
Sanderson 6-A-11, ne sw sw 11-20s-36e	750	3883
Gulf, State-Graham 2-H, c sw sw 13-20s-36e	1840	3875
The Texas Co., W. Weir 2, c se sw 23-19s-36e	1000	4046
LEA COUNTY (Penrose)—		
Continental et al, E. M. Elliott 2-A-15, c sw se 15-22s-37e	150	3675
J. E. Farrell et al, Walden 2-B, c ne sw 15-22s-37e	40	3704
Gulf, L. I. Baker 2, c ne se 5-22s-37e	150	3735
Manda 1, c se sw 21-22s-37e	70	3670
Lee Stebbins 1, c se nw 5-22s-37e	550	3760
Landreth Prod. Corp., Grizzell 4, c sw sw 5-22s-37e	500	3780
Southern Pet. Explo., Inc., Rinewalt 1, c nw nw 4-22s-37e	2500	3756

*Failures; †Junked; ¶Million cu. ft. gas.

ning 2½-inch tubing, but had been shut in several days.

Original completion for the Vacuum pool was scored in July, 1929, by Vacuum Oil Company. Magnolia Petroleum Company later acquired the property, and completed a 268-barrel pumper last May for a ¾-mile southeast extension. The new producer occupies the highest structural position, having logged top of lime at 4300 feet, or 269 feet sub-sea, as compared to minus 307 feet credited to the discovery, which is capable of flowing its proration allowable.

State land 3¼ miles south of production in the Vacuum area is being explored by The Texas Company's State 1-L, C SW NE 1-18s-34e, which was drilling in salt at 2285 feet after cementing 9-inch at 1545 feet. Top of anhydrite has been tentatively placed at 1449 feet, with an elevation of 3998 feet. Phillips Petroleum Company's State-Lea 1, C NW NW 30-17s-34e, about 4¾ miles southwest of production in the Vacuum pool, has plugged back from 4952 feet to test small oil show passed up at 4702-07 feet. First water was logged at 4912 feet, or minus 804 feet. Emperor Oil Company's Johns Permit 1, C SW NW 24-17s-32e, about 2¼ miles east of production in the Maljamar pool, oldest producing area in Lea County, and on a general trend towards the Vacuum area, was drilling at 2900 feet, with an elevation of 4049 feet.

Bid for a 1¾-mile northwest extension for the Lynch field, Lea County, by National Drilling and Producing Company and Frazier Moss' H. A. Flint-Conoco 1, C NE NE 29-20s-34e, was eliminated by salt and sulphur water at 3595 feet, with increases recorded in drilling to 3772 feet. It has an elevation of 3681 feet.

Decreased nominations by crude purchasers serving the sour oil areas in Lea County for the October period figured in the 10,500-barrel cut ordered by the Oil Conservation Commission for the state. The revised schedule restricts the output to 104,000 barrels daily, or about equal to the state's output last March. The burden of curtailing production will fall on non-marginal wells in Lea and Eddy counties. Lea County areas prorated on a flat well basis will be cut from 77 barrels to about 71 barrels daily, according to reports, as a large number of completions in September must be absorbed.

Curtailment of drilling is likely to result from the reduced well allowable. Lea County recorded 16 oil completions the past week, and added 12 new tests, which were distributed among five fields. North end of the Cooper lime field gained a new operation through Republic Production Company's B. Davis 1, SW SW SW 34-23s-36e. Location was originally made in February, 1936. Repollo Oil Company's R. W. Cowden 1, NE NE NE 31-23s-37e, is a semi-wildcat to the northwest for the Mattix sandy lime field. The Texas Company's C. C. Fristoe 2, NW NE NE 3-25s-37e, offsetting production, is a new project for the latter area.

Expansion of production on the southwest edge of the Monument area continued promising after Continental Oil Company et al's A. U. Sanderson 6-A-11, NE SW SW 11-20s-36e, flowed 14 barrels of 33 gravity oil per hour natural through ¾-inch tubing choke from lime at 3850-3883 feet. It has an elevation of 3575 feet.

ROCKY MOUNTAIN FIELDS

Bunker Hill wildcat makes 5,000,000 cubic feet.

* * *

Cobb's deep Lance Creek test shows for production.

Casper, Wyo.—Brought in for 5,000,000 cubic feet of gas per day, Ohio Oil Company's Wyoming Oil & Gas Company 1, CSE SW 29-27n-89w, Bunker Hill structure, Carbon County, southern Wyoming, placed the Bunker Hill structure on the list of commercial gas producing areas this week. The well is producing from the Shannon sands logged at 1220 to 1488 feet, with 7-inch casing set on top of the sand. The old hole on the structure, drilled several years ago and abandoned, has been shut down after casing off water and plugging back to the base of the Shannon at 1468 feet.

A deep test in the Wertz field, Carbon County, Wyoming, Sinclair-Wyoming Oil Company's Wertz 11-A, has reached 5268 feet in the red beds and is drilling ahead.

Watch Lance Creek Deep Test

Interest in Lance Creek, Niobrara County, eastern Wyoming, was attracted this week to the west side of

MOUNTAIN STATES

MONTANA

Company, Well and Location	Init. Prod. Bbls.	Depth
GLACIER COUNTY (Cut Bank Field)—		
Texas Co., Morrison 7, lot 6, sec 22-35n-6w	73	2922
Glacier Production Co., Fuller 3, se se se 17-33n-5w	51	2989
Newall Unit 1, se se nw 13-33n-5w	¶14½	2703
K. D. Pardee et al, Jackson 1, sw se ne 35-34n-6w	15	2703
TOOLE COUNTY (Kevin-Sunburst Field)—		
A. E. Crumley & Sons, Fryberger 10, sw ne se 24-35n-3w	30	1591

COLORADO

ARCHULETA COUNTY (Price Field)—		
Oil City Petroleum Co., Garnett 2, ne nw sw 25-33n-2e	*	1515
BENT COUNTY (Big Bend Area)—		
Indian Territory Illuminating Oil Co.,-Olson Drilling Co., Arbes 1, center lot 2-21s-48w	*	5651
FREMONT COUNTY (South Florence Field)—		
Utax Oil Co., 1, cse sw 20-20s-69w	*	2730
MOFFAT COUNTY (Shell Creek Structure)—		
Kerlyn Oil Co.-Mtn. Fuel Supply Co., Government 1, cne sw 1-12n-100w	*	3750

*Failures; †Junked; ¶Million cu. ft. gas.

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the field where A. B. Cobb's Novick-Ong 2, SEC SW 6-45n-65w, is testing production in the Minnelusa sand in which the hole is bottomed at around 5305 feet. Preliminary tests indicate that the well may make better than 1800 barrels daily. It defined the southwestern limits of the Basal Sundance sand of the field when it encountered water in that formation.

Along the east flank of Lance Creek, Ohio Oil Company's Leo 1 OPC-7, NWC NW SE 35-36n-65w, is nearing completion. The well has run tubing and is circulating oil preparatory to swabbing. Depth is 5641 feet, in Minnelusa, with 5¾-inch casing set on top of the saturated sections at 5596 feet.

The deep test well on the north edge of West Shawkee Creek area, Chadron-Osage Oil Company's State 1, SW SW SW 16-32n-69w, set 8¼-inch casing on bottom at 4040 feet this week for a water shutoff and is waiting on cement to set before drilling ahead. Operators report good gas shows with some oil from the bottom of the hole. Identification of the lowest formation penetrated has not been released.

In Salt Creek field, Natrona County, central Wyoming, Stanolind Oil & Gas Company is pushing ahead with its deep Tensleep development campaign. The company's Wyoming Associated Oil Company-Tensleep 29, CSW SW 26-40n-79w, is drilling in shale at 1171 feet; Wyoming Associated Oil Company-Tensleep 11, CNE NW 35-40n-79w, also headed for the deep Tensleep horizon of the Salt Creek field, is drilling in shale at 2237 feet. The sands are found at around 4000 feet.

Montana drilling operations slowed this week as operators continued to make allowances for the expected winter slump in market demands for the area. Six completions, including two gas wells and two failures, were reported for the two major producing fields of the state, Cut Bank field in Glacier County and the Kevin-Sunburst field in Toole County.

An unexpectedly large turnout for the lease sale of Blackfoot tribal lands at Cut Bank field last week resulted in sales of 14 of the 17 tracts offered for sale. The taking of these tracts calls for the drilling of at least 12 wells during the next 12 months. The acreage sold lies within the boundary of the Blackfeet reservation on the west edge of the Cut Bank field.

MICHIGAN FIELDS

Uncertainty of output gives Michigan periodical excess of production with low prices.

* * *

Local refineries contract for Mid-Continent oil and take it while state output piles up.

Mount Pleasant, Mich.—Michigan's cycle production of crude oil during the past 12 years is chiefly responsible for the 1937 marketing situation, which finds the state with a potential production of approximately 150,000 barrels daily and market outlets for less than 50,000 barrels.

This situation is more serious to the Michigan oil industry than appears on the surface. What is more, there appears no immediate answer to the difficulty.

Michigan did not gain any recognition as a crude oil source until 1925, with the short-lived Saginaw pool. The state produced 4000 barrels that year, and ever since has been going through a cycle of ups and downs spaced about 18 months to 2 years apart, although its total annual crude output has generally moved upward year after year.

In 1928 the total production was 592,620 barrels, and in 1929 it reached 4,641,239 barrels through a combination of the Muskegon field and Mount Pleasant field. It dropped the next year, and was at 3,785,633 barrels in 1932.

Discovery of the Porter field in early 1933 shot production upward that year to 6,925,665 barrels, with continued gains to a peak of 15,776,237 barrels for 1935. Again the decline set in with 1936 total falling to 11,928,013 barrels.

Discovery of Buckeye in Gladwin County, Sherman in Isabella County, Clayton in Arenac County, and Salem in Allegan County late in 1936, started the cycle upward for a total of 6,922,754 barrels the first six months of this year, under heavy proration.

Toledo, Ohio, has been, and is, the principal crude oil outlet for Michigan, where Pure Oil Company, Sun Oil Company and Standard Oil Company of Ohio refineries are the chief users. These companies either operate or have affiliates with production in Michigan. Since discovery of the Mount Pleasant field in 1928, Pure Oil Company has controlled most of the production, having the major amount of productive acreage in the original Mount Pleasant field, the East Extension, Porter and Yost-Jasper.

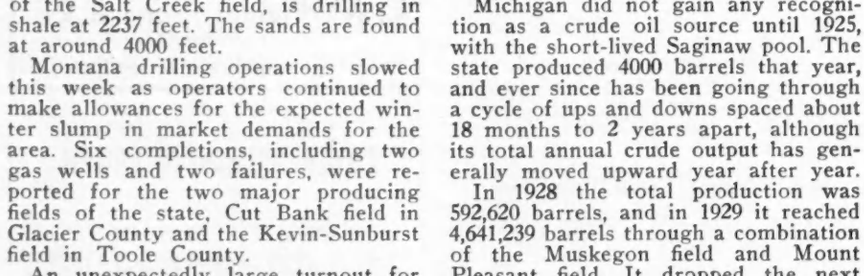
22 Michigan Refineries

Twenty-two Michigan refineries have been built during the past 12 years with a total capacity of approximately 40,000 barrels, although the "economic capacity" is rated at about 24,000 barrels for all Michigan plants.

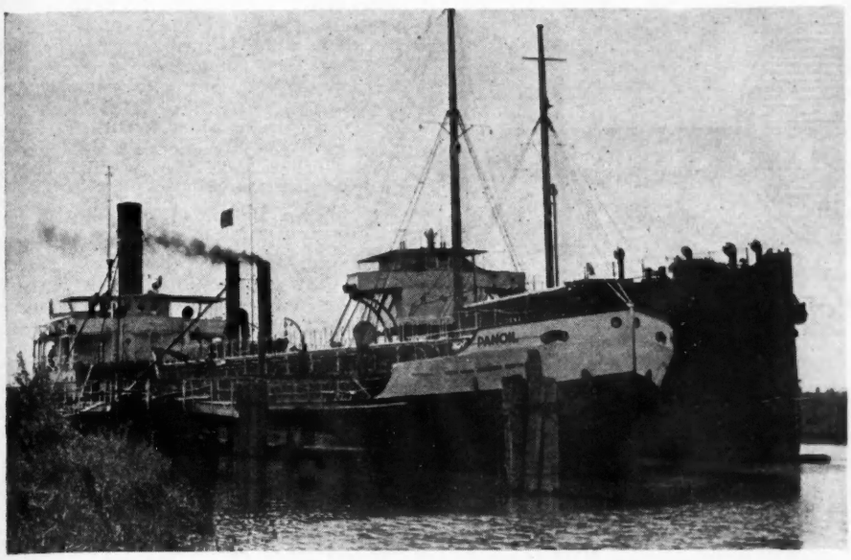
With Mid-Continent crude available on long term contracts, Toledo markets, even though affiliated with three of the major operators in Michigan, continue limited to Michigan oil. All out-state markets combined, including railroad and boat deliveries into Canada, Chicago and other points, and Toledo today total approximately 25,000 barrels daily.

The key to the marketing situation today in Michigan lays in Michigan-Toledo Pipe Line Company's 8-inch system built in 1935-36 from Mount Pleasant to Toledo. This line has a top capacity of 24,000 barrels daily. It is controlled by Standard Oil Company of Ohio.

Prior to construction of this line, virtually all Toledo marketed crude was moved by lake tankers out of Bay City, Michigan, a terminal connected by Pure's 8-inch line into Greendale station, 15 miles east of Mount Pleasant. Boat deliveries, however, are seasonal. Railroad deliveries for bulk



Pure Transportation Company's 20-car loading rack at Beaverton, Michigan, rail shipping point for Buckeye crude. Simrall Pipe Line Company also has a rail terminal at Beaverton. Most Michigan crude for Michigan refineries moves by rail.



Two tankers, each with 20,000 barrel capacity, tied up for loading at Bay City, Michigan, for delivery of Michigan crude to Toledo. Pure Transportation Company operates this system, which was the outlet for bulk Michigan crude up to 1936 when Michigan-Toledo Pipe Line Company completed 8-inch to Toledo.

movement of oil to Toledo or Chicago are prohibitive in competition with Mid-Continent crudes.

This leaves Michigan with a Mid-Continent competitive delivery of approximately 24,000 barrels daily, with a potential increase of 10 to 20 thousand barrels more by Pure's summer lake shipment system and a present-day market of about 20,000 barrels in Michigan.

There appears little likelihood of the Toledo line being looped immediately, or any other company making the necessary outlay for a line into Toledo or Chicago this year. Michigan-Toledo has just completed a booster program on its Toledo line, jumping the capacity from 18,000 to 24,000 barrels. Sun Oil Company, only active major in the Buckeye field, with a big potential already built up, has considered the feasibility of building a line from the field to Bay City for lake shipments.

Besides the carrier facilities to out-state refineries, two other factors bear strongly on any immediate increase. Both hinge on Mid-Continent crude.

So far Michigan has been unable to maintain a steady supply in volume to out-state refineries and Michigan crude to refineries operating chiefly for cracked gasoline output is less desirable than Mid-Continent, on price parity.

Price Is Cut

The effect on Michigan development of the depressed markets to date has been a 15-cent per barrel price cut and slowing up of drilling operations. A group of independent producers are now threatening suit against pipe line companies for the 15-cent price cut. Drilling operations have slowed down from 15 to 25 per cent since spring.

Several operators who rushed into Buckeye, paying high lease prices, and starting a big drilling campaign, soon found themselves out on a limb with the pinch of proration. Proration has and is increasing cost of operations in Buckeye. The field is without a major water problem, but wells sludge up with the result that tubing must be pulled or scrapers run from two to five times a month on flowing wells. Shut in wells frequently have to be swabbed or cleaned out if shut in for a day or more before coming back on production.

Four Buckeye Lines

Four pipe line systems are operating in Buckeye today with a combined outlet of 40,000 barrels. In July of this year, peak month for the field, daily runs averaged 17,259 barrels daily. Average production per well was 95 barrels daily against the maximum of 150 barrels per well under the prorate setup.

Up to this year Pure Oil Company has dominated both production and carrier facilities. Pipe line proration was necessary in 1929-31 in the Mt. Pleasant field; again in 1933 in Porter and in 1935 with Crystal. In the first two cases Pure controlled most of the production and in Crystal production had hit its peak and subsided within less than a year.

While Pure is the dominant acreage holder and developer in the Sherman field, independents control the bulk of Buckeye, Clayton and Allegan. Sun Oil Company is the only major in Buckeye with a big block of proven acreage. As a result, there is less harmony now between the proraters, pipe lines and operators.

None of the four pipe line companies in Buckeye are major producers. Pipe line companies instead of dealing with a few producing companies are dealing with dozens of companies.

Further difficulties have been precipitated by alleged under-cutting the market price. One of the major carriers charged that price-cutting forced the general drop in July. Most independents, regardless of their desire to sell more oil, are opposed to anything that will bring more market only with a result in less revenues from lower prices.

Consumers Power to furnish 60-day emergency gas supply

Mt. Pleasant, Mich. — Consumers Power Company has entered an agreement to supply a 60-day "emergency" supply to Gas Corporation of Michigan. Consumers main trunk line from the Six Lakes and Broomfield gas fields to Saginaw and Bay City crosses the Gas Corporation line just north of Mt. Pleasant's city limits.

Isabella County test flows 43 barrels when agitated

Mt. Pleasant, Mich. — Forty-three barrels of oil which flowed under swab agitation September 28, is believed to have definitely established Boston Oil & Gas Co.'s Fox 1, 23-15n-5w, Isabella County, as a commercial Monroe limestone well.

Further testing of the wildcat seven miles northwest of Mt. Pleasant and mid-way between the Sherman and Denver oil fields, may be delayed for a week or more. A satisfactory shutoff has not been obtained. Moreover, the hole has 200 feet of cavings.

Leasing has spurted southeast of the strike over an area nine miles long and two miles wide. No new locations had been reported this week.

Hirzel - Leland Development Company's Palambos 1, Section 4-4n-13w, Allegan County, nearly two miles north of the shallow Traverse lime field in Salem township, showed a sharp structural dip and is being plugged at 1808 feet. Traverse was found at 1760 feet.

Eighteen drilling permits issued for the week included six new wildcat starts. Other locations are for Buckeye, Salem and older fields.

Michigan to auction leases on 35,000 acres October 8

Mt. Pleasant, Mich.—Approximately 35,000 acres of state owned oil and gas leases will be offered at auction in Lansing, October 8, under direction of the state's land division. About 23,000 acres are in Roscommon County.

MICHIGAN Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
ALLEGAN COUNTY—		
Hirzel Leland Dev.'s Palmbos 1, sw ne se 4-4n-13w	*	1808
Lentz & Miller, Inc.'s Sebright 1, nw nw sw 16-4n-13w	50	1650
Buge 5, ne se ne 17-4n-13w	70	1590
ARENAC COUNTY—		
Harvey Linabury's Dubey 1, nw nw sw 25-19n-3e	60	2002
GLADWIN COUNTY—		
Harold J. Hand's Smart 1, c n½ ne nw 29-17n-2e	90	3497
Wicklund Dev. Co.'s State K-3, ne sw se 3-18n-1w	60	3615
Sun, Ockerman 4, nw ne sw 10-18n-1w	400	3610
Rex Oil & Gas Co.'s Jacob 5, sw ne nw 11-18n-1w	300	3624
Arkwright 1, sw nw ne 35-18n-1w	470	3578
Swanson & Big Three Oil Co.'s Fritzwater 3, ne ne se 26-18n-1w	200	3600
Fritzwater 4, se ne se 26-18n-1w	150	3602
F. O. Whitelow's Fritzwater 3, nw se se 26-18n-1w	180	3591
Garfield Pet. Co.'s McMahon 4, se sw sw 36-18n-1w	176	3582
IOSCO COUNTY—		
Pabst Pet. Co.'s Monfort 1, se se ne 8-22n-6e	*	3647
ISABELLA COUNTY—		
McClanahan Oil Co.'s Beutler 4, se ne sw 34-15n-6w	*	3657
MIDLAND COUNTY—		
Pure, Root E-4, sw nw 7-13n-1w	80	3445
OGEMAW COUNTY—		
United Driller's Harrington 1, se nw se 14-22n1e	*	2990
Weber Oil Co.'s Buckingham 1, nw nw sw 35-22n-2e	70	2653
Newell & Woughter's Poole 1, sw ne se 36-22n-2e	65	2590

*Failures; †Junked; ‡Million cu. ft. gas.

CALIFORNIA FIELDS

Gaviota gets gas showing at Point Concepcion.

* * *

Standard preparing to complete Greeley outpost.

* * *

Fifteen rigs running in Santa Maria Valley field.

Los Angeles.—Gaviota Oil Company's Hollister 1 wildcat in the Point Conception area of Santa Barbara County, developed 10 million cubic feet of gas and a small amount of light oil at 3207 feet this week. The sand was topped at 3201 feet, where 8⅝-inch casing was cemented, prior to shutting the well in. Tubing will be run before another production test is made.

In the same general area Western Gulf Oil Company drilled two wildcats. One blew gas and a small amount of light oil; the other, gas and salt water.

New drilling in the Oxnard area of Ventura County is being held up pending the outcome of two tests. The recently completed discovery well made a small pumper.

Preparing to Complete

Standard Oil Company is preparing to complete the most northeasterly test for the new Greeley field. Oil sand was topped at 7600 feet, and it is the plan of the company to cement a string of pipe before coring ahead. This hole is K.C.L. 12-2, located 2310 feet north and 997 feet east from the southwest corner of Section 16-29-26. It has an elevation of 350 feet. Standard is drilling four other holes in this field and preparing to start two more soon.

Santa Maria Valley Busy

The new Santa Maria Valley field in Santa Barbara County is becoming more active. Almost every week limits of the field are being extended. There are 15 drilling projects and 14 new holes soon to start.

An outpost to Santa Maria E. H. Moore's Union Sugar 2, Section 19-10-34, is drilling ahead in shale at 4237 feet. Union Oil Company's Leroy 2, wildcat in Section 24-10-35, is drilling in shale at 4975 feet. It is understood both are running low on structure.

May Abandon at Firebaugh

There is a possibility that the wildcat in the Firebaugh area of Madera County will have to be abandoned at 6388 feet. This is Seaboard Oil Company's Gill 1, Section 27-12-15. This hole was drilled as joint venture with Tide Water Associated Oil Company and General Petroleum Corporation. The geology of the area will be rechecked before any decision is reached.

O. C. Field's Santa Rita 1, Section 11-7-33, in the Santa Rita area of Santa Barbara County, with bottom at 3358 feet, has oil in the hole. String of 8⅝-inch was cemented at 1921 feet and 5¾-inch liner, including 250 feet of perforated, was run. The liner parted and a fishing job is the result. It is understood the fluid level stood at 1000 feet.

Second Well at Northwest Long Beach

In the new Northwest Long Beach field, the second producer was completed at 4135 feet for 750 barrels of clean oil. This is Hilldon Oil Company's Ameb. Co. 2, with 9-inch cemented at 4087 feet. It is flowing by heads, fluctuating between 500 and 1000 barrels a day. Tubing pressures range from 150 to 200 pounds and casing pressures range from 600 to 690 pounds. The same company's Flood Control 1, 6105 feet deep, with 5¾-inch cemented at 5663 feet, has been completed for 50 barrels of 23 gravity oil, cutting 10 percent. The hole is being plugged to 5300 feet and will be gun perforated from 4600 to 5300 feet in an effort to increase the production.

Two other wells are drilling in the new field.

Two Below 11,000 Feet

California now has two wells drilling below 11,000 feet. Kettleman North Dome Association's No. 4-18J, Section 18-21-17, outpost for the north dome, is drilling at 11,258 feet in dark gray and gray brown sand, with an occasional streak of oil sand. Continental Oil Company's K.C.L. A-2, wildcat in Section 8-27-24, Wasco area of Kern County, is coring hard brown shale at 11,050 feet.

Minerals Yearbook published

The United States Bureau of Mines, Washington, D. C., recently published its Minerals Yearbook for 1937.

The book is only obtainable from the Superintendent of Documents, Government Printing Office, Washington, D.C.

CALIFORNIA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
KETTLEMAN HILLS—		
Standard, No. 3-P-4	1200	8020
EDISON—		
Monterey Explor. Co., Shell-Duff 7..	100	1930
FRUITVALE—		
Meridian Oil Co., Turner 5	300	3045
Western Gulf, Red Ribbon 8	700	3456
MIDWAY-SUNSET—		
C. C. M. Oil Co., No. 25	175	2716
MOUNT POSO—		
Union Oil, Tribe 12	310	1855
D. G. Vedder, B.N.B. 1	350	1691
MOUNTAIN VIEW—		
Barnsdall, Nighbert 2	120	4840
PREMIER—		
Tide Water Associated, No. 8	100	2775
ROUND MOUNTAIN—		
Calif. Western Oil Co., No. 5	400	1958
Honolulu Oil Corp., No. 15	70	1854
Shell, Freeman 15	575	1860
TEN SECTION—		
Shell, No. A-4-30	3270	8236
ELWOOD—		
Barnsdall, Doty Permit 95-1	*	3674
KERN COUNTY—		
Well Developers, Detert 1	*	3307
Vedder Pet. Co., Lambert 29-3	*	1863
Pacific Oil & Gas, Davidson 1	*	2849
Trico Oil & Gas Co., Allen 1	*	1870
TULARE COUNTY—		
J. W. Alford, Williams 1	*	1023
VENTURA COUNTY—		
Texas Co., Pierce 1	*	4042
DOMINGUEZ—		
Union, Callender 50	190	7574
Hellman 47	145	6700
NORTHWEST LONG BEACH—		
Hilldon Oil Co., Amebco 2	750	4135
ROSECRANS—		
Barnsdall, ODea 16	275	6559
WILMINGTON—		
Bankline Oil Co., Class Yards 3	225	3487
Black Gold Corp., No. 4	250	3583
Exeter Oil Co., Banning 1	290	3609
Ring Oil Co., Wilmington 5	300	3615
Union Pacific Ry., Offset 22	500	3422
Offset 37	135	3577
PLAYA DEL REY—		
Sharby Oil Co., Santa Monica Dairy 2	*	7522
EL SEGUNDO—		
Richfield, Santa Fe 1	*	7690
ORANGE COUNTY—		
West American Oil Co., Irvine 1	*	6070

*Failures; †Junked; ¶Million cu. ft. gas.

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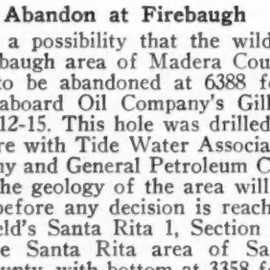

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IMPORTANT WILDCAT TESTS

ALABAMA

CHOCTAW COUNTY—Joe Modisett et al's McCorvey 1, se sw sw 20-9n-2w, elev 120 ft, top Selma chalk 1865 ft, top Eutaw 2913 ft, top Tuscaloosa 3525 ft, top upper Cretaceous marine formation 4100 ft, dr 4702 ft black shale and shells.

GREENE COUNTY—Greene County Dev. Co.'s R. C. Lett 2, se nw 5-21n-2e, sd 115 ft.

HOUSTON COUNTY — Rice O&G Co.'s Oakley Est. 2, nw sw 9-3n-29e, sd 4975 ft.

ARKANSAS

CROSS COUNTY — Manning & Martin's Park-Gieseck 1, nwc ne ne 4-6n-5e, 10-in csg 754 ft, dr 3405 ft.

CALHOUN COUNTY—Hayner et al's Brandon 1, sw nw sw 34-11-13, rur.

CLEVELAND COUNTY—J. R. Lockhart's Hernsberger 1, se ne 16-11-43, dk.

COLUMBIA COUNTY—Standard of La.'s McKean 1, c sw sw 8-16-22, 9⅝ in csg 4692 ft, dr 6849 ft. Tidewater-Seaboard's C. N. Crumpler 1, nec sw 24-17-19, dr 3515 ft, red beds and gravel. Kerr Lynn & Co.'s Barnett 1, sw ne 14-17-20, spd.

CRITTENDEN COUNTY — Stanley Oil Corp.'s D'Anna 1, 18-8-9, arr test so 1387 ft.

DREW COUNTY—Sloan Wells et al's Hardy 1, sec nw 3-14-7, rur.

HEMPSTEAD COUNTY—Easton, May & Murdock's R. M. LaGrone 1, ne ne 5-12-16, arr sdtr, td 2944 ft. C. W. Hays et al's State of Ark. 3, n½ 20-13-26, rur.

LINCOLN COUNTY — Fitzwater, Inc.'s Owen 1, nw se ne 26-9-8, spd, dr 400 ft shale.

LONOKE COUNTY—Frank Silver's Chambers Est. 2, sw ne nw 17-2-7, sd 1500 ft. Al Demur's High 1, ne sw 25-1n-9w, sd 512 ft. Jas. E. Russell's Gunter 1, 17-5-10, dk.

MILLER COUNTY—Freeman W. Burford's August 1, 8-20-27, elev 337 ft, coring 6160 ft. Garver Means 1, 11-20-27, elev 219 ft, coring 6070 ft.

NEVADA COUNTY—W. E. Lokey, Tr.'s Purifoy 1, ne ne 17-11-120, sd 1630 ft. A. M. Lacey's Bennett 1, c sw ne 28-14-22, rur. Union Drlg. Co.'s R. W. Fuller 1, nec se 6-13-21, woc 10-in csg 120 ft, dr 1875 ft.

OUACHITA COUNTY — Copenhaver Oil Corp.'s J. E. Evans 1, ne sw 20-11-19, elev 154 ft, co 1730 ft. Benedum & Trees Oil Co.'s G. W. Slaughter 1, nw nw 24-14-19, rur. O. F. Whittaker's C. C. Guttry 1, se sw se nw 21-15-19, lcn.

UNION COUNTY—Lion O. R. Co.'s Morgan A-1, 18-18-17, dr 7010 ft. W. D. Wingfield's Southern Kraft 1, sw ne 18-16-14, elev 124 ft, junked abnd, td 5330 ft. I. J. Langley's K. K. Langley 1, nw se ne 1-19-18, lcn. Phillips Pet. Co.'s Ed Gan 1, sw se ne 18-18-17, elev 232 ft, owdd, td 6061 ft.

CALIFORNIA

FRESNO COUNTY

CLOVIS—American Valley Oil Co.'s No. 1, 1-12-20, bldg rig.

JACALITOS HILLS—Jacalitos Pet. Corp.'s No. 1, 14-21-15, rur.

HURON—Puron Oil Co.'s S. P. 1, 31-18-17, ready to spud.

KERN COUNTY

LERDO—Arkelo Pet. Co.'s No. 41, 23-28-26, td 10,056 ft, redr at 7780 ft.

McKITTRICK—Birch Ranch Oil Co.'s Lovitt 1, 10-30-21, sd 3850 ft in shale, dips 65 degrees. H. H. Bell et al's No. 1, 6-31-22, now Mer Oil Co. and is rig. Rocima Oil Co.'s No. 1, 20-30-22, foundation.

WASCO—Continental Oil Co.'s K.C.L. A-2, 8-27-24, dr shale 10,978 ft. Seaboard Oil-Tide Water Associated's K.C.L. C-1, 26-27-24, sd 10,213 ft.

ROSEDALE—Continental Oil Co.'s K.C.L. B-1, 12-29-26, td 10,205 ft, top of fish at 5354 ft, washing over.

DEVIL'S DEN—Den Pet. Co.'s Bates 1, 20-25-19, sd 4716 ft.

ARVIN—General Pet. Corp.'s Houchin 1, 27-31-29, dr 6848 ft.

BELRIDGE—General Pet. Corp.'s St. Helens 1, 12-28-20, rur.

GRAPEVINE—Hall-Baker Co.'s No. 1, 1-16-19, dr gray sand 1776 ft. Reserve Oil & Gas Co.'s Tejon 33-2, 33-11-19, td 4505 ft, redr at 4477 ft; Tejon 4, 33-11-19, td 5444 ft, plug 4607 ft, sd.

STRAND—Ohio Oil Co.'s K.C.L. E-3, 14-30-25, dr shale 3728 ft.

KERN FRONT—Pacific Oil & Gas Co.'s Davidson 1, 36-27-27, td 2849 ft, abn.

ROUND MOUNTAIN—Rudolph Pageman's No. 1, 10-28-29, rig. Tampico Pet. Co.'s Goodnight K-3, 17-28-29, dr oil sand 1868 ft, topped Vedder at 1846 ft. J. J. Tavis' Olcese-Tave's 1, 4-29-29, sd 3260 ft.

MOUNTAIN VIEW—Section Six Oil Co.'s Johnston 1, 6-31-29, dr shale 5344 ft.

TEN SECTION AREA—Standard's K.C.L. 15-1, 27-30-27, lcn.

SEMI TROPIC—Standard's Randolph 2, 14-27-23, dr shale 2982 ft.

McGUNDEN—Standard's Routzong 1, 2-30-28, rur.

McFARLANE—Stone & Freid's No. 1, 34-25-25, rig.

GREELEY—Superior Oil Co.'s K.C.L. 9, 3-30-26, dr shale 7364 ft, top Stevens sand at 7170 ft, barren.

SOUTH MARICOPA—Texas Co.'s Pioneer 1, 33-11-23, dr shale 3160 ft.

RIO BRAVO—Union Oil Co.'s Kernco 1-34, 34-28-25, dr shale 10,832 ft.

KERN RIVER—Well Developers' Detert 1, 16-28-26, td 3307 ft, in gray sand, top Vedder 3237 ft, to abn.

MISCELLANEOUS

HUMBOLDT COUNTY—Texas Co.'s Eureka 2, 22-3-1, td 7708 ft, plug 5737 ft, co.

KINGS COUNTY—Ray Bisconer's No. 2, 11-24-20, sd 1650 ft. Dudley Ridge Dev. Co.'s No. 2, 24-23-20, sd 3850 ft. Kettleman View Oil & Gas Co.'s No. 1, 9-22-19, sd 4787 ft. Pyramid Prod. Co.'s Retherford 1, 27-24-18, lcn. Tri-Counties Oil Co.'s Olson 1, 10-23-22, sd 5810 ft.

MADERA COUNTY—Seaboard Oil Corp.'s Associated-General Pet.-Gill 1, 27-12-15, td 6388 ft, sd in shale and oil sand.

MERCED COUNTY—Amerada Pet. Corp.'s Carano 1, 19-10-11, td 300 ft, spud Sept. 20, rur.

SAN JOAQUIN COUNTY — Standard's Zuckerman 2, 25-2-4, lcn.

SAN MATEO COUNTY—Wilshire Oil Co.'s Cowell 1 (Half Moon Bay) 20-6-5, dr shale 1563 ft.

SOLANO COUNTY—Amerada Pet. Corp.'s S. J. I. D. 1, 24-4-2, td 600 ft, wocs 13⅜ in on bottom. Tracy Dr. Co.'s Hanson 1, 25-4-2, td 600 ft, wocs 13⅜ in on bottom.

SUTTER COUNTY—Buttes Oilfields' No. 4 (Marysville Buttes), 2-15-1, td 5850 ft, gas well, shut in.

TULARE COUNTY—E. P. Jennings' No. 2, 33-23-23, sd 2732 ft. Magnet Oil Co.'s A.O.G. 3, 29-24-24, dr shale 6971 ft. Standard's Morris 1, 36-24-23, dr shale 8376 ft. Tulare Dome Oil Co.'s Tulare Dome 1, 17-21-23, td 3120 ft, plug 2850 ft, sd.

YOLO COUNTY—Standard's P. Cook 1, 32-12-1, dr shale and gray sand 2906 ft; E. E. Hooper 1, 32-9-1, td 4048 ft, ran formation tester, recovered mud, gas and salt water.

MONTEREY COUNTY—Amil A. Anderson's Hillman 1, 15-24-14, sd 1628 ft; California Oils' No. 2 (Parkfield) 33-23-15, lcn.

SAN LUIS OBISPO COUNTY—Burkholder Oil Corp.'s Clay 1, 14-10-26, sd 3990 ft, to drop from report. Hancock Oil Corp.'s Dicks 1, 30-12-33, dr fractured shale 2749 ft. Dorothy Leingang's No. 1, 32-10-26, sd 410 ft. A. O. Lewis, Pecho 1, 34-30-10, sd 2750 ft. Temblor Oil Co.'s No. 1, 22-31-21, sd 3050 ft. Vanguard Oil Co.'s Clark 1, 26-27-14, spud, td 50 ft, suspend operations and will dr Baker 9 at Mount Poso.

SANTA BARBARA COUNTY — E. C. Arnold's Apache 2, 8-8-33, td 6374 ft, pumping 120 bbls net, 29 gravity, cut 15 to 35 percent. Carpenteria Oil Co.'s No. 1, 34-4-2, foundation. Crude Oil Dr. Co.'s Crude 1, 19-9-34, sd 515 ft. O. C. Field's Santa Rita 1, 11-7-33, td 3358 ft, showing oil in shale, ran liner, bailing. Gaviota Oil Co.'s Hollister 1, 35-5-33, td 3207 ft, set 8⅝ in at 3200 ft to test water shutoff. Hancock Oil Co.'s Los Alamos 2, 6-7-32, dr gray fractured shale 6203 ft. Mid-Western Oil Co.'s No. L-1, 28-4-27, sd 2054 ft. Nine Springs Oil Co.'s Brinkinhoff 1, 9-7-30, td 3300 ft, redr at 3100 ft. Tide Water Associated's Leonis 1, 3-6-33, dr conglomerate 3741 ft. United Western Oil Co.'s No. 1, 16-7-30, dr shale 754 ft. Valley Oil Co.'s Chief 1, 20-9-34, sd 2315 ft. Vista Del Mar Oil Co.'s Williams 1, 16-4-26, td 4120 ft, waiting on new dr pipe.

SANTA CRUZ COUNTY—Elba Oil Co.'s Elba 1, 6-12-1, td 3968 ft, set 6⅝ in at 3870 ft, testing shutoff; No. 2, 6-12-1, rig.

VENTURA COUNTY—Oxnard Oil Co.'s Vanoi 1, 10-1-22, dr total depth 6168 ft, cored oil sand 6063 to 6087 ft, found oil sand 6087 to 6127 ft, also oil sand 6127 to 6147 ft, coring ahead. Seven Seas Oil Co.'s Johnson 1, 15-1-22, td 1038 ft, wocs 13⅜ in at 953 ft. Vaca Oil Explor. Co.'s Livingston 1, 6-1-21, dr shale 4181 ft. Texas Co.'s Pierce 1, 20-2-21, td 4042 ft, abn.

SOUTHERN CALIFORNIA

NEWHALL—Barnsdall Oil Co.'s Rancho S. F, 2, 26-4-17, td 5090 ft, fsh dr pipe. Holbrook

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*
‡—*salt water (completions).*
†—*junked and abandoned.*
¶—*million feet of gas.*
abd—*abandoned.*
bbls—*barrels.*
br—*building rig.*
b.s.—*basic sediment.*
csg—*casing.*
co—*cleaning out.*
dd—*drilling deeper.*
dk—*derrick.*
dr—*drilling.*
fsg—*fishing.*
ft—*feet.*
hfw—*hole full of water.*
in—*inches.*
lcn—*location.*
m—*milling.*
mim—*moving in materials.*
mit—*moving in tools.*
mot—*milling on tools.*
n, s, e, w—*north, south, east, west.*
oih—*oil in hole.*
owdd—*old well drilling deeper.*
owpb—*old well plugging back.*
pb—*plugged back or plugging back.*
r—*reaming.*
rog—*rig on the ground.*
rur—*rigging up rotary tools.*
rust—*rigging up standard tools.*
sd—*shut down.*
sdtr—*sidetracking.*
sg—*show gas.*
si—*shut in.*
so—*show oil.*
so&g—*show oil and gas.*
spd—*spudding.*
sr—*straight reaming.*
sw—*salt water.*
td—*total depth.*
ur—*underreaming.*
wih—*water in the hole.*
wo—*workover.*
wocs—*waiting on cement to set.*
wosr—*waiting on standard rig.*

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Pet. Co.'s Newhall Land 1, 28-4-16, td 6224 ft, plugging and testing by stages.

PICO CANYON—A. G. Burt's No. 1, 36-4-17, dr shale 2161 ft.

LYNWOOD—Calizoo Oil Co.'s Saulque 1, 9-3-13, td 7520 ft, plug 5800 ft, sd.

PUENTE—Camroo Oil Co.'s Stern 1, 33-1-9, dr sand and shale 1730 ft.

NORTH LONG BEACH—Geo. L. Clayton's Clayton 1, 32-3-12, dr sand and shale 5968 ft.

FOX HILLS—Country Club Oil Co.'s No. 1, 19-2-14, sd 4986 ft.

WHITTIER—T. R. Davis & Associates' No. 1, 22-2-11, lcn.

NORTHWEST MONTEBELLO — Frank Fuller & Associates' Garvey 1, 27-1-12, rig.

PLAYA DEL REY—Robt. C. Hall's No. 1, 22-2-15, lcn.

PALOS VERDES—Hunter-Devlin and Associates' No. 1, 17-4-14, dr shale and streaks oil sand 4497 ft.

WALNUT—Julian & Criswell's Langstaff 1, 5-2-9, dr shale streaks hard sand 2629 ft.

PALOS VERDES HILLS—McClaren Bros.' No. 1, 27-4-14, td 3970 ft, redr to 1870 ft, sd; No. 2, 27-4-14, rur.

NEWHALL—Risdon & Henderson's No. 1, 23-3-16, lcn.

CASTIAC — Royal Lands Corp.'s Ramona Hills 1, 8-4-17, rig.

DEL REY-VENICE—Sharby Oil Co.'s Santa Monica Dairy 1, 22-2-15, td 7522 ft, abn.

OLINDA—Amalgamated Oil & Gas Co.'s Parr Com. 1, 22-3-9, lcn.

SUNSET BEACH—A. S. Johnston Dr. Co.'s No. 30, 20-5-11, dr gray sand 6223 ft.

ANAHEIM—Shell Oil Co.'s Harbeson 1, 9-4-10, dr shale and gray sand 6314 ft.

TUSTIN—West American Oil Co.'s Irvine Ranch 1, 14-5-9, td 6070 ft, abn, tested all upper formations.

FLORIDA

LAKE COUNTY—Oil Dev. Co. of Fla.'s Gulf Expl. Co. 2, se se 17-24s-25e, elev 120 ft, arr acidize and re-test at 2600 ft, old td 6126 ft.

LEVY COUNTY—Fla. Oil Discovery Co.'s Sholtz 2, sw ne 9-15s-13w, elev 25 ft, dr 930 ft brown limestone.

NASSAU COUNTY—St. Mary's River Oil Corp.'s Hilliard Turpentine Co. 1, nw nw se 19-4n-24e, dr 3405 ft, dark gray lime.

SUWANEE COUNTY—Wm. G. Blanchard et al's Lucy Cotton 1, se ne 35-3s-11e, elev 70 ft, dr 500 ft.

KANSAS

BARBER COUNTY—Olson & Skelly Oil Co.'s Elsea 1, sw se nw 27-32s-14w, fsg. Helmerich & Payne et al's Blunk Estate 1, cse 18-34s-13w, dr 4155 ft. W. I. Southern, Inc.'s Davis 3, se se ne 24-34s-15w, will shoot 5360-75 ft. Kansas Oil Corp.'s Mease 1, ne se se 27-30s-11w, rig. Palmer Oil Corp. et al's Warwick 1, cnw 29-31s-10w, rur.

BARTON COUNTY—Ralph Wixon et al's Buhrle 1, se se ne 14-16s-13w, sd 3175 ft. Armes & Vernon O&G Co's Persons 1, sw sw se 7-17s-13w, ur 8-in csg 2835 ft. Vickers Pet. Co.'s Lucas 1, nw nw ne 16-17s-14w, td 3482 ft, D&A. C. L. Price et al's Hammeke 1, ne ne sw 12-18s-12w, 1800 ft oih. Brouk & Nat'l Ref. Co.'s Gory 1, nw nw sw 10-17s-13w, dr 1896 ft. Shell Pet. Corp.'s Peterman 1, se ne se 13-16n-14w, to core at 3344 ft. Arch Merriam et al's Norris 1, ne ne nw 33-17s-11w, rig. Martin & Foraker et al's Dick 1, ne sw sw 31-19s-11w, brr. Tom Palmer et al's Polzin 1, nw nw se 4-16s-12w, rot rig.

BUTLER COUNTY—Rex & Morris et al's Stephens 1, sw sw se 35-23s-3e, hfw 2696 ft.

CHAUTAUQUA COUNTY—C. L. Brosius et al's Garrett 1, nw sw nw 26-32s-11e, co 1545 ft. Craft's Lagree 1, se nw ne 8-32s-12e, P. 4 bbls oil per day, comp. Harrison et al's Brown 1, ne se ne 19-34s-10e, sd 510 ft. S. H. Vineard's Hughes 1, ne ne se 13-32s-12e, sd 426 ft. W. G. Buffington's Fisher 1, cwl sw nw 10-34s-9e, sd 1050 ft. Ingot Oil Co.'s McKee 1, sw ne sw 21-32s-12e, dr 1515 ft.

COWLEY COUNTY—Pryor & Lockhart's Brown 1, ne se se 34-33s-3e, dr 3285 ft. G. M. Smith & C. L. Price's Henderson 1, sw sw sw 25-32s-6e, ru mach. Arthur Brewer Co.'s Starkey 1, sw sw ne 16-30s-4e, dr 2350 ft. Earl Wakefield's Whitson 1, sw ne se 8-32s-4e, mim.

EDWARDS COUNTY—Douglas & Gears' Meade 1, se se nw 35-25s-16w, sdo.

ELLIS COUNTY—Earl Wakefield et al's Burnett 1, nw nw ne 1-11s-18w, ur 6-in csg 3359 ft. Lario O&G Co.'s Ball 1, nw nw ne 8-12s-18w, dr 2550 ft. P. G. Reynolds et al's Karlin 1, nw nw nw 13-12s-18w, ur 8-in csg 2565 ft. Skiles et al's Jensen 1, sw se ne 26-12s-18w, dr 2902 ft. Colonial Oil Co. and Bernheimer's Allbert 1, sw sw ne 31-12s-18w, fsg 1260 ft. L. M. Reynolds et al's Polcyn 1, se se ne 24-13s-16w, dr 2980 ft. Brunson Drlg. and Glimac Oil Co.'s Weisner 1, se sw se 31-13s-17w, td 3590 ft; so and sat. in cuttings. Aylward Prod. Co. et al's Berens 1, se se se 10-14s-16w, spd & sd. Buffalo Oil Co.'s Phillips 1, ne ne ne 18-14s-16w, td 3460 ft, pb to K.C. lime.

ELLSWORTH COUNTY—Equity Gas Co. et al's Razac 1, ne ne se 31-15s-10w, td 3270 ft, D & A. Colonial Oil Co.'s Hogy 1, nw nw sw 16-16s-10w, ru. Hinkle et al's Alden 1, se se sw 17-17s-10w, dr 585 ft. Hinkle et al's Andrea 1, ne ne se 17-17s-10w, ru.

GRANT COUNTY—Panhandle Eastern P.L. Co.'s Taggert 1, c Sec 11-30s-37w, testing.

GRAY COUNTY—P. G. Reynolds' Watkins 1, csw 32-28s-28w, ru.

GREENWOOD COUNTY—Ward McGinnis et al's Henley 1, sw sw sw 25-25s-9e, set 6-in csg, woc. Eagle Oil Co.'s Stine 1, ne ne se 13-28s-10e, dr 250 ft. S. Van Devanter et al's Dover 1, ne se sw 12-28s-11e, skid 20 ft so. Whittiker & Johnson's Cannon 1, cel se nw 8-26s-13e, mach.

HARVEY COUNTY—Allison & Fitzwilliams et al's Hawks 1, se sw ne 16-24s-1w, sd 475 ft.

JACKSON COUNTY—Lemmick Oil Co.'s Marble Savings Bank 1, cne ne 26-9s-14e, spd & sd.

KEARNEY COUNTY—J. L. Murphy's Masonic Home 1, cne 1-26s-36w, sd 1469 ft.

KINGMAN COUNTY — Carter Oil Co.'s Davis 1, ce½ ne ne 24-28s-8w, dr 3563 ft.

LOGAN COUNTY—Morgan, Flynn, Cobb et al's McMillan 1, cnw 9-13s-37w, sd 3489 ft.

LYON COUNTY—Davis & Sory's Davis & Sory 1, sw sw se 32-21s-11e, P, 25 bbls oil and 25 bbls wtr, 24 hrs, comp.

MARION COUNTY—Western Kan O & Ref. Co.'s Suderman 1, se sw nw 22-20s-2e, dr 3100 ft.

McPHERSON COUNTY—C. E. Ash Drlg. Co.'s Broman 1, ne ne nw 19-17s-4w, dr 2635 ft. Wamhoff et al's Nuse 1, se ne sw 18-18s-4w, sd 1850 ft. Dole-Park Dev. Co.'s Doles 1, ne nw ne 12-19s-1w, sd 2775 ft. Clyde Pulse et al's Boesker 1, se se nw 29-20s-1w, rig. C. R. Craft et al's Barnholt 1, sw sw se 30-20s-5w, P. 115 bbls oil, 9 hrs, sd. Boyle & Grossman's Diener 1, se se ne 35-19s-1w, dr 1150 ft. H. C. Becker et al's Mason 1, sw sw ne 9-17s-1w, dr 2208 ft.

MEADE COUNTY—Pacific Mid-West Oil Co.'s Rexford 1, ne se sw 8-30s-29w, dr 900 ft.

MITCHELL COUNTY—Geo. Siedhoff et al's Greiss 1, nw sw se 16-8s-10w, sd 4022 ft.

NESS COUNTY—Newton Dev. Co.'s Tenny 1, nw nw se 19-18s-25w, sd 4406 ft. Jones & Lanes' Page Milling Co. 1, se se nw 36-18s-26w, dr 2520 ft.

OSBORNE COUNTY—J. E. Waldron's Neuschwanger 1, se ne nw 11-8s-14w, spd & sd. Fred C. Chaddox and Atlantic's Slater 1, ne sw ne 33-10s-15w, ur 8-in csg 2800 ft. F. E. Fullerton & Sons' Moray 1, ne se sw 27-10s-12w, sd 500 ft.

PHILLIPS COUNTY—C. W. Davidson et al's Ellif 1, se ne ne 35-5s-18w, sd 350 ft.

PRATT COUNTY—Atlantic, Cities Service and Skelly Oil Co.'s Runyon 1, sw nw ne 11-27s-13w, shot with 20 qts at 4294-4300 ft, co. Skelly Oil Co.'s Adams 1, se nw ne 2-28s-11w, run 6-in csg 3957 ft. Stanolind O&G Co.'s Hartsell 1, nw nw sw 14-26s-12w, dr 3100 ft.

RENO COUNTY — Sam Schneider et al's Kroecker 1, ne ne ne 12-22s-5w, fsg 2435 ft. Butler & Street's Kincaid 1, ne ne nw 13-24s-4w, rot rig. Carey et al's McPheeters 1, ne ne nw 22-26s-8w, spd & sd. W. E. Witt et al's Fair 1, nw se se 4-22s-8w, fsg 2425 ft. Cohen et al's Teter 1, se se sw 3-23s-5w, rig. Westgate-Greenland et al's Popp 1, sw sw ne 7-25s-4w, brr.

RICE COUNTY—Gillespie et al's Strong 1, ne ne nw 9-18s-8w, spd & sd. John Hanna et al's Marshall 1, ne nw nw 30-18s-8w, sd 1515 ft. Skiles et al's Campbell 1, se se ne 28-19s-9w, td 2956 ft, 2000 ft oih, 3 hrs. Gerbrand-Pulse Oil & Drlg. Co.'s Wellman 1, sw sw sw 22-21s-9w, ur 8-in csg 2785 ft. Oread Oil Co.'s Erion Estate 1, nw nw nw 34-21s-7w, lcn. Bell O&G Co. et al's Timbers 1, nw nw ne 8-21s-8w, rot rig. Elbar Corp.'s Ehlers 1, ne ne se 8-21s-9w, rot rig.

ROOKS COUNTY—W. W. Kiskadden et al's Ham 1, sw sw nw 25-7s-19w, ru. Graham et al's Fike 1, sw sw sw 9-9s-17w, P. 50 bbls oil and 35 bbls wtr, 8 hrs. C. R. Craft et al's Ziegler 1, ne ne sw 8-10s-16w, dr 3005 ft. J. H. Lester's Methany 1, se se ne 29-20s-10w, co 3875 ft.

RUSH COUNTY—Wakefield et al's Zimmerman 1, se se sw 7-16s-18w, sd 3015 ft. Wakefield and Brouk's Kerbs 1, nw nw se 11-17s-16w, spd & sd.

RUSSELL COUNTY—H. C. Eisenhour et al's Krouse 1, se se nw 18-13s-12w, spd & sd. Cities Service and The Texas Co.'s Boxberger "B" 1, ne ne ne 23-13s-15w, set 8-in csg 3025 ft, co. Parks' Opdycks 1, sw sw sw 20-14s-13w, sd 260 ft. Emrichs et al's Anderson 1, ne se sw 33-15s-11w, spd & sd. Cities Service Oil Co. et al's Eichman 1, csw sw se 12-15s-14w, dr 2477 ft. Phil-Han Oil Co.'s Deines 1, ne ne nw 33-14s-14w, dr 225 ft. Trapp Drlg. & Ramsey's Polcyn 1, ne ne se 34-14s-15w, dr 2035 ft. Murfin & Vernon O&G Co.'s Pearson 1, ne ne ne 31-15s-15w, spd & sd. Parks et al's Gorham 1, sw nw ne 35-15s-15w, cel. C. L. Price's Sebesta 1, ne ne ne 36-15s-11w, rig.

SEDGWICK COUNTY—Roxanna Drlg. Co. et al's Woodman 1, sw nw sw 26-26s-1w, sd 2469 ft. Nat'l Ref. Co.'s Fee 1, se ne se 36-27s-2e, dr 1315 ft. I. W. Murfin et al's Martin 1, se se nw 32-28s-1e, dr 1975 ft. W. C. Talbott et al's Downs Estate 1, se se nw 32-28s-2e, flo 3,922,000 cf gas and 845 lbs pressure. Palmer Oil Corp.'s Royal 1, ne ne ne 15-28s-1w, sdo 3899 ft. Union O&R et al's Howell 1, sw sw sw 6-29s-1e, dr 1830 ft. Fulton et al's Fee 1, ne ne se 35-28s-1e, ur 8-in csg 765 ft. McKnab et al's Garrett 1, se sw sw 18-29s-2e, dr 80 ft.

SHERMAN COUNTY — R. E. Parrish's Pizzel 1, ne ne se 15-6s-42w, abd lcn.

STAFFORD COUNTY—W. P. Faulkner's Moses 1, nw nw sw 9-22s-13w, fsg 915 ft. Kessler O&G et al's Jenkins 1, se se ne 15-25s-12w, dr 3967 ft. E. J. Shaffer's Spencer 1, nw nw sw 3-25s-14w, td 4798 ft, D & A. Fred P. Rust et al's Wm. Johnson 1, nw nw sw 29-25s-12w, dr 2920 ft.

SUMNER COUNTY—W. M. McKnab's Blair 1, sw sw sw 7-30s-1e, dr 3153 ft. R. J. Wixon's Newton 1, se se se 21-30s-2e, sd 1975 ft. Magnolia Pet. Co.'s Baird 1, sw se se 2-30s-4w, dr 1761 ft.

TREGO COUNTY—Phillips Pet. Co.'s Trego 1, cne nw 14-12s-23w, woc 3935 ft. Central Commercial Oil Co.'s Locker 1, csw 12-14s-22w, dr 3000 ft. F. L. Thorn et al's Koeppen 1, se se sw 31-14s-24w, ur 5-in csg 4410 ft. Thurman Hill et al's Lawson 1, sw sw nw 7-14s-22w, dr 2560 ft. R. E. McNely et al's Hille 1, cse ne 22-15s-24w, brr.

WALLACE COUNTY—H. F. Wilcox O&G Co.'s Parker 1, se se ne 9-11s-40w, rur.

WOODSON COUNTY—Ward McGinnis et al's Smith & Jobes 1, nw nw se 10-24s-15e, td 1633 ft, P. 3 bbls oil per day, D & A. Fred Rapp's Houghland 1, nw nw se 2-25s-15e, sd 1520 ft. Becker Bros.' Vann 1, cnw nw sw se 22-25s-14e, ur 6-in csg. Seibel's Kerschner 1, cnl ne ne 3-26s-15e, sd 1489 ft. Steinle's Kash 1, se se se 4-26s-15e, sd 1570 ft.

NORTH LOUISIANA

BIENVILLE PARISH—DeSoto O&G Co.'s Wm. Ashley 2, c sw se 15-16n-10w, mim. Hunt & Seaboard's Commercial Bank 1, c ne nw 3-16n-6w, elev 241 ft, massive anhydrite 5270-5510 ft, saturation 6736-76 ft, woc 7-in csg td 6801 ft, completed making 1 mil ft gas and 25 bbls distillate daily, td 6801 ft. Gulf Oil Corp.'s Good Pine Oil Co. 1, se sw 25-14n-8w, spd, dr 750 ft. Hunt & Seaboard's Federal Land Bank 1, c s½ 10-16n-6w, rur.

BOSSIER PARISH—L. W. Dennis' D. T. Roos 1, sw nw nw 13-19n-12, spd so 400 ft, dr 500 ft.

CADDO PARISH—W. J. Hunter et al's N. B. Stoer 1, nw sw ne 10-15n-15w, elev 257 ft,

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perf csg 5100-20 ft, making 2 mil ft gas and 15 bbls distillate daily, old td 6562 ft. Prairie River Synd.'s Hutchinson 1, sw nw 15-15n-12w, elev 153 ft, top lower Marine 8380 ft, top Bodcaw sand 8775 ft, coring tight sand 9085 ft, lower Marine. A. O. Olsen et al's R. T. Sharp 1, nw nw 15-18n-16w, rur.

CONCORDIA PARISH—E. A. Addy et al's Pasternack 1, c nw sw 49-8n-9e, spd and sd.

CLAIBORNE PARISH—J. R. Bevill et al's Alex Edmonds 1, ne ne 16-20n-5w, elev 160 ft, pumped and flowed by heads, installing new pumping unit, td 5413 ft. Hal Compton's T. M. Kilgore 1, ne ne 12-20n-5w, mim. J. B. Bond's Burgess 1, ne se ne 3-20n-5w, elev 276 ft, 5¾ in csg 5276 ft, pb to 5325 ft, acidized and flowing oil, wo 24-hour gauge, old td 5800 ft. Lyons & Neely's Simms 1, c ne ne 32-20n-5w, spd dr 4025 ft. W. L. McClanahan et al's J. T. Lewis 1, sw se 25-20n-7w, rur. United Gas' Stevenson 1, se sw se 6-19n-5w, completed est 50 t o 70 mil ft wet gas, td 5670 ft; Brownfield 1, nw ne 6-19n-5w, cemtd 5¾ in csg 5679 ft, woc, td 5740 ft.

DE SOTO PARISH—Pullman Oil Co.'s J. W. Ramsey 4, ne se nw 36-11n-11w, tested sw, sd 2934 ft. Clear Lake Oil Co.'s J. A. Woolums 1, nw nw 29-12n-12w, sd 2000 ft.

FRANKLIN PARISH — Tensas Delta Oil Corp.'s Woodland 1, se nw se 22-11n-9e, dry abnd, td 6500 ft.

LINCOLN PARISH—Burford et al's P. N. Hanna 1, w½ se 34-18n-4w, elev 269 ft, sd 6535 ft. T. L. James & Co.'s Spencer 1, c w½ ne 11-17n-4w, elev 365 ft, massive anhydrite 4892-5200 ft, tested est 15 mil ft gas and 10 joints mud in 15-minute drill stem test 6340-6619 ft, missed 3 other drill stem tests, sd 6619 ft. Ludel Oil Co.'s Gill 1, c ne ne nw 36-20n-2w, elev 249 ft, massive anhydrite 3698-3945 ft, dr 5190 ft. E. H. Moore's Commercial Bank-Williams 1, nw nw 22-18n-5w, top Blossom 3173 ft, showed 5 ft sw sand, dr 3892 ft shale. Gigantic Oil Co.'s R. L. Sanderson 1, nw se nw 30-18n-1w, sd 60 ft, cur titles.

RED RIVER PARISH—Whitehurst et al's LeLong 1, ne nw ne 25-12n-11w, woc 250 ft. W. J. Hunter's Long-Bell Lbr. Co. 1, sw nw 20-13n-9w, tested 4 joints oil 2 of sw 3650 ft, sd 4004 ft (contract depth).

SABINE PARISH—E. Howard's Sabine Lbr. Co. 1, ne nw 24-9n-12w, ru and sd. Romine et al's La. Long Leaf Lbr. Co. 1, sw sw 7-5n-12w, 12½ in csg 92 ft, dr 2695 ft. Odell Hinson's Long-Bell Lbr. Co. 1, 5-8n-13w, acidized, flowed short t me, hfo, wosr, td 1811 ft. Fox & Phillips' Cook Land Co. 1, 1-9n-12w, mim.

UNION PARISH—Joe Modisett's Frost Lbr. Co. 1, ne sw 14-21n-1e, rur (7000 ft test).

WEBSTER PARISH—V. L. Foster's J. M. Mixon 2, c se se 21-21n-10w, dr 4790 ft. Magnolia Pet. Co.'s Aarnes-Cox 4, sw ne ne nw 22-21n-10w, elev 196 ft, woc 9⅝ in csg 5855 ft, dr 7015 ft shale; T. Crichton 1, c ne nw 33-21-10, rur. Ohio Oil Co.'s Bodcaw Acct 2, 47, c sw se 15-21-10w, elev 200 ft, dr 7800 ft shale and sand. S. P. D. Coyle & W. Cox 1, c sw se 23-21n-10w, elev 211 ft, dr 7120 ft sand; T. Crichton 1, Acct. 2, c se ne 21-21n-10w, elev 217 ft, dr 8235 ft; R. L. Holloway B-7, c sw ne 23-21n-10w, elev 196 ft, dr 7730 ft; D. W. Merritt 1, c sw sw 14-21n-10w, elev 189 ft, dr 7386 ft shale, sand. A. G. Oliphant et al's Sam Banks 1, c ne ne 34-21n-10w, elev 196 ft, dr 7450 ft shale. Standard of La.'s Davis 7, c ne nw 23-21n-10w, elev 196 ft, dr 6372 ft. Mrs. M. E. Gray 2, c ne nw 26-21n-10w, elev 237 ft, dr 6427 ft. United Gas' J. M. Mixon 2, nw sw 22-21n-10w, rur. J. H. Tillman 6, ne ne 28-21n-10w, rur. Woodley Pet. Co.'s R. R. Cox B-2, sw sw 23-21n-10w, elev 229 ft, dr 7365 ft shale; Gray B-5, sw ne 27-21n-10w, rur.

SOUTH LOUISIANA

ACADIA PARISH — Humble's Sarver 1, South Crowley area, 35-10s-1e, sd 5119 ft. Magnolia's Duson 1, Iota prospect, 14-8s-2w, dr shale 7893 ft. Gulf's Broussard 1, Midland prospect, 49-10s-2w, ru. J. G. Markley et al's Daigle Farms 1, Churchpoint area, 19-7s-2e, coring shale 5676 ft.

CALCASIEU PARISH—D & D Oil Co.'s Lutcher Moore 2, nw of Starks, 1-8s-13w, dr in sdtr hole, 8239 ft.

CAMERON PARISH — Humble's Miami Corp. 1, Catfish Lake area, 8-14s-3w, dr shale 3055 ft. Pure's State 2, Mallard Bay area, 14-13s-3w, dr shale 9102 ft. Superior's State 1, in Gulf of Mexico, 4-15s-8w, ru.

IBERIA PARISH—Jefferson Lake Oil Co.'s Lake Peigneur 414, Jefferson Island dome, 12s-5e, testing 6576 ft. Texas Co.'s State 1, in Vermilion Bay, 16s-5e, dr shale 4938 ft.

JEFFERSON PARISH—Triangle Oil Co.'s Carroll 1, n of New Orleans, 125-12s-11e, dr shale 3742 ft.

JEFFERSON DAVIS PARISH—Union Sulphur's T. R. S. Farms 1, South Roanoke area, 23-10s-4w, woc 8596 ft.

LAFOURCHE PARISH—Amerada-Louisiana Land & Exploration Co.'s South Coast 1, Raceland area, 34-15s-19e, coring shale 7463 ft. Gulf's State PP3, Timbalier bay area, 36-23s-21e, dr plugs at 6971 ft. William Helis' City of New Orleans 2, Marchland prospect, 19-23s-23e, ru.

PLAQUEMINES PARISH — Gulf's State QQ 3, Quarantine Bay area, 17-19s-17e, dr shale 6489 ft.

ST. JAMES PARISH—Continental's Realty Operators 1, Hester prospect, 17-12s-5e, lcn.

ST. MARTIN PARISH — Texas Co.'s St. Martin Land 10, Henderson prospect, 15-8s-1e, dr shale 6028 ft; same operator's State 4, Lake Mongoulois area, 14-10s-9e, lcn.

ST. MARY PARISH—Texas Co.'s State 1, Bateman Bay area, 21-16s-12e, coring shale 11,329 ft.

TERREBONNE PARISH — Barnsdall Oil Co.'s Brown 1, n of Gibson field, 110-16s-15e, ru.

VERMILION PARISH — Continental's Brookshire 1, Abbeville area, 66-12s-3e, woc 11,909 ft.

MICHIGAN

ALLEGAN COUNTY—E. L. Andrew's Perrigo 1, 28-2n-13w, sd 1490 ft. Champion Dev. Co.'s Detling 1, 35-2n-13w, r, td 1722 ft; Young 1, 26-1n-12w, sd 1600 ft.

ARENAC COUNTY—Joe Zucker's Reed 1, 10-19n-5e, sd 2330 ft. Harvey Linabury's Smith 1, 17-19n-6e, sd 2070 ft.

BAY COUNTY—Charles Weller's Dewyer 1, 20-16n-3e, rig. Stork Oil Co.'s Century 1, ne se se 9-17n-3e, mim. Bell & Mark's Lokwoski 1, 27-14n-3e, dr 1410 ft.

GLADWIN COUNTY — Mammoth Pro. & Ref. Co.'s Nunn 1, 18-17n-2w, Dundee 3873 ft, dr 3931 ft. Mt. Pleasant Drilling Co.'s Raze 1, 33-19n-1w, rig. Dibble Brothers' Kimble 1, 16-18n-1e, 5 inch 3588 ft. D. E. Hughes' Cox 1, 12-19n-2w, dr 2830 ft. Whitehill et al's Bosley 1, 11-19n-1w, dr 990 ft. Dapar Oil Co.'s Villeneuve 1, 11-20n-2w, dr 1480 ft.

ISABELLA COUNTY—Boston Oil & Gas Co.'s Fox 1, 23-15n-5w, co 3825 ft, so&g, swabbed 43 bbls. Charles Weller's Cotter 1, 11-15n-5w, dr 2900 ft.

MONTCALM COUNTY — Ide & Glavin's Britten 1, 1-12n-5w, dr 2600 ft. Hirzel-Leland Co.'s Hansen 1, 31-10n-7w, dr 200 ft.

NEWAYGO COUNTY — Midstates Corp.'s Eichenberger 1, 7-16n-11w, dr 350 ft. Muskegon Dev. Co.'s McKinley 1, sw nw nw 36-11n-14w, lcn; Carlson 1, 9-16n-12w, fsg 3168 ft.

MISCELLANEOUS COUNTIES: Alcona—Thalman & Morris' Kohlman 2, 10-26n-7e, dr 1400 ft. Cheboygan—Bert Francis, Tr.'s Campbell 1, 7-34n-1w, dr 530 ft. Clare—James A. McKay's Fee 11, 4-17n-4w, dr 1190 ft. McClanahan Oil Co.'s Mortenson 1, 9-18n-5w,co 1665 ft. Gratiot—Red Man Oil Co.'s Creaser 1, 18-11n-2w, dr 680 ft. Huron—L. D. Hendershot's Klamp 1, ne ne ne 1-17n-14e, rig. Lake—Cherry Valley Dev. Co.'s Rice 1, 25-18n-12w, dr 490 ft. Mecosta—McHardy Synd.'s Gingrich 1, 12-15n-7w, testing so 3864 ft. Midland—Mammoth Pr. & Ref.'s Penny 1, 9-16n-2w, dr 2600 ft. Otsego—Barton & Williams' Yuill 1, 9-32n-3w, dr 500 ft. Saginaw—Bridgeport Oil Co.'s Tobias 1, 35-11n-5e, mim. Bond Oil Co.'s Schomaker 1, 1-11n-1e, dr 2600 ft.

MISSISSIPPI

BOLIVAR COUNTY — Phillips Pet. Co.'s Perthshire 1, 2-24n-7w, dr 5712 ft, Paleozoics.

CALHOUN COUNTY—B. G. Dowell's H. D. Hughes 1, 18-23n-9e, dr 1405 ft. Ed Spencer's J. C. Conner 1, se ne 12-24n-8e, mim.

FRANKLIN COUNTY—Fred E. Courson et al's Homochitto Lbr. Co. 2, 300 ft n c 18-5n-3e, dk.

JONES COUNTY — Snow-Black Pet. Co.'s Cranford 1, s½ nw 29-7n-12w, owdd 4110 ft.

KEMPER COUNTY—R. A. Keaton et al's Buckwalter Lbr. Co. 1, nec 6-10n-14e, dk.

LAMAR COUNTY—Sun Oil Co. et al's Mrs. Kate Talley 4, se nw 33-4n-15w, 13⅜ in csg 507 ft, dr 980 ft. South Miss. Oil Co.'s Morris 1, sec 4-2n-14w, spd and sd.

PIKE COUNTY — Acadian Prod. Corp.'s Bales 1, c se nw 24-7n-2e, dk.

WILKINSON COUNTY—Chas. Green et al's Julian Taylor 1, 4-3n-1e, elev 251 ft, cemtd 6⅝ in csg to test formation 2378-2410 ft, woc, td 4048 ft, Minden limestone.

YALABOUSHA COUNTY—Acme Holding Co.'s S. D. Boyle 1, nw nw 33-25n-7e, rur. Skuna Dev. Co.'s Mrs. T. A. Turner 1, se sw ne 25-25n-6e, hole clean, arr deepen 906 ft.

MONTANA

GLACIER COUNTY—W. E. Ullman's Allotted 1, csw 35-36n-3e, dr 4080 ft.

YELLOWSTONE COUNTY — Broadview Dome Oil Co.'s Halbritter 1, se nw 18-3n-25e, dr 2800 ft. R. C. Tarrant's E. A. Heare 1, cwl ne nw 14-6s-19e, dr 1100 ft.

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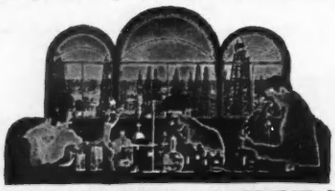
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OKLAHOMA

ADAIR COUNTY — B. L. Maddox's Penn Mutual Life Ins. Co. 1, cs½ ne nw 5-16n-24e, dr 260 ft.

ATOKA COUNTY—A. L. Larson's Mason 1, sw se se 35-1n-14e, sd 180 ft. C. M. Sheldon & Gardner Pet. Co.'s Lee 1, ne nw sw 2-4s-10e, dr 750 ft. Hagey et al's Becker 1, cne¼ 4-1n-13e, pipe stuck at 1300 ft. Hagey et al's Peck 1, c ne¼ 6-1n-13e, rig.

BECKHAM COUNTY—Mid-American Oil Co.'s Biscoe 1-A, sw sw sw 28-8n-22w, sd 2220 ft.

BRYAN COUNTY—Southern Oil Co.'s Henry 1, cnw ne 10-8s-7e, lcn.

CADDO COUNTY—Clyde Becker et al's Pharris 1, se se nw 24-6n-4w, sdo 6235 ft. I.T.I.O. Co.'s Dome-Bo 1, cne se 29-6n-10w, cor 4107 ft.

CLEVELAND COUNTY—Harper & Turner's Pollock 1, cw½ nw nw 13-9n-2w, bldg rig. Hollenback's Norman 1, nw nw ne 17-9n-2w, dr 7401 ft.

CHOCTAW COUNTY—V. K. Chapman & Low's Hallum 1, nw nw ne 4-7s-20e, mach.

COAL COUNTY—Phillips Pet. Co.'s Beck 1, se sw sw 6-1n-9e, dr 3530 ft. Carter Oil Co.'s Claytor 1, cw½ ne sw 27-2n-9e, dr 6018 ft.

COMANCHE COUNTY—J. W. Wolf's Costinus 1, sw sw se 30-4n-11w, spd. Frank Scott's Kuntz 1-A, se ne se 27-4n-11w, sd 2800 ft. Andrichak's Korthouse 1, nw ne sw 33-2n-18w, si.

COTTON COUNTY — Bowers & Wise's Pendergraft 1, sw se sw 4-4s-12w, der.

CREEK COUNTY—M. W. Mosier et al's Holcomb 1, se sw ne 19-18n-8e, recem. 5-in csg. L. B. Jackson's Alberty 1, ne ne nw 25-18n-9e, td 2964 ft, flo 180 bbls oil per day, est 2,500,000 cf gas, comp.

GARFIELD COUNTY—H. R. Hollenback et al's Clark 1, nw nw nw 34-21n-6w, br.

GARVIN COUNTY—Carter Oil Co.'s Potts 1, c e½ se nw 36-1n-3w, dr 2692 ft. B. C. D. Edwards' Clark 1, ne ne ne 16-3n-3e, fsg 2101 ft.

GRADY COUNTY—Gulf Oil Corp.'s Thomas 1, sw nw nw 14-4n-5w, dr 7750 ft. Doyle Pet. Co.'s Huffine 1, nw nw se 30-5n-8w, der.

GRANT COUNTY—Carter Oil Co. et al's Crisman 1, c w½ sw nw 16-25n-3w, flo 756 bbls oil and 322 bbls wtr last 24 hrs, comp.

GREER COUNTY—J. I. Medlin et al's Broudie 1, nw nw nw 5-6n-20w, ru and sd.

HASKELL COUNTY—Continental Oil Co.'s Ferguson 1, sw se ne 33-8n-20e, dr 6909 ft.

HUGHES COUNTY — Phillips Pet. Co.'s Becker 1, ne nw sw 8-5n-10e, dr 2971 ft. H. H. Ellis' Tiger 1, nw se sw 29-6n-8e, td 734 ft, pb 700 ft, 2,500,000 cf gas, comp. W. O. Allen et al's Barnard 1, sw sw sw 24-8n-8e, testing. Moroney & Healey's Field 1, cnw sw 11-9n-11w, td 3540 ft, D & A. E. H. Moore's Buck 1, cnw sw sw 21-8n-10e, td 4025 ft. Pure Oil Co.'s Rogers 1, se se ne 18-8n-12e, bldg rig.

JACKSON COUNTY—Ace Gutowsky et al's Booker 1, nw nw nw 33-2n-18w, dr 964 ft. Ace Gutowsky et al's Lee 1, nw nw se 36-2n-19w, lcn. Ace Gutowsky's Howard 1, ne sw nw 10-3n-19w, sd 950 ft.

JEFFERSON COUNTY—Massad & Swansberger's Barrett 1, ne se se 14-6s-6w, ru & sd.

JOHNSTON COUNTY—Patton et al's McCrummens 1, sw sw ne 16-1s-6e, dr 1260 ft. W. T. Shelton's Chapman 1, cnw nw 26-4s-6e, sd 1812 ft.

KAY COUNTY—Fortuna Oil Co.'s Harris 1, sw sw ne 14-25n-1e, sd 383 ft. E. J. Shaffer et al's McKee 1, ne ne nw 20-28n-1w, spd & sd.

KIOWA COUNTY—E. L. Lippert's Miller 1-A, nw nw nw 14-2n-18w, bailing salt wtr. Kiowa Oil Corp.'s Finder 1, csw ne 4-6n-20w, tools out & sd. Hughes & Reese's Fultz 1, se se se 10-6n-18w, td 810 ft, si. H. L. Wirick et al's Noske 1, sc se nw 1-6n-17w, dr 1121 ft.

LATIMER COUNTY—Clark Drlg. Co.'s Wilson 1, cse se 15-5n-18e, sd.

LINCOLN COUNTY—Continental Oil Co.'s Community 1, nw nw se 7-15n-5e, dr 4190 ft. C. L. Carlock et al's Young 1, c n½ nw nw 23-15n-5e, rig. Riley & Talbot et al's Weidler 1, nw sw nw 20-17n-2e, rig & mit.

LOGAN COUNTY—Anthony & Marshall's Fruin-Eckman 1, se se sw 4-16n-1e, so & g, sd 5181 ft. Sunray & Olson's Canning 1, sw sw ne 31-17n-1w, dr 5109 ft.

MAJOR COUNTY—Ed Parsons' Patzkowsky 1, c nw¼ 10-20n-11w, rig.

MARSHALL COUNTY—Paul Robb et al's Vittitoe 1, cne se 11-5s-4e, co to 720 ft. F. W. Merrick, Inc.'s Robbinson 1, ne ne ne 33-7s-4e, lcn.

MURRAY COUNTY—Power Oil Co. et al's Lancaster Trust Co. 1, csw ne 10-1s-2e, dr 4155 ft. O. O. Owens' Fryer 1, ne se ne 34-1s-3e, 1400 ft wih, sd. Meyer & Greenup's Arbuckle Royalty Co. 1, nw nw ne 18-2s-3e, spd 48 ft & sd.

MUSKOGEE COUNTY — F. E. Cusack's Elliott 1, cnl nw sw 20-15n-20e, rog. Cusack's Fee 1, ne sw se 20-15n-20e, spd 65 ft.

NOBLE COUNTY—Seaboard Western Oil Co.'s Guthrie 1, nw nw ne 6-20n-2w, dr 5373 ft. Darby Pet. Co.'s McCoy 1, sw sw sw 24-23n-2w, dr 2940 ft.

OKFUSKEE COUNTY—Burke-Greis' Rhea 1, sw sw se 14-10n-9e, dr 1700 ft. F. W. Merrick's Mackey 1, ne ne sw 29-11n-10e, dr 3275 ft.

OKLAHOMA COUNTY—Ardie Oil Co.'s State 1, ne ne se 16-14n-4e, cor 4976 ft.

OSAGE COUNTY—Nat'l Ref. Co.'s Page 2, nw sw se 28-22n-9e, lcn.

PAWNEE COUNTY—J. F. McManman et al's School Land 1, nw nw ne 16-21n-5e, dr 2120 ft.

PAYNE COUNTY—H. S. Brim et al's McKenzie 1, cwl se ne ne 13-18n-3e, C & P. Stanolind & Amerada's Bennett 1, nw se ne 31-19n-4e, lcn.

PITTSBURG COUNTY—Okla Dist Oil Co.'s Beeler 1, ne ne sw 7-7n-14e, co.

PONTOTOC COUNTY—Norbla Oil Co.'s McBride 1, ne ne sw 10-2n-5e, lcn. Union Dev. Co.'s Abbott 1, sw nw ne 34-3n-6e, dr pipe stuck 2500 ft. Boettcher O&G Co.'s Gann 1-A, se nw ne 25-4n-7e, fsg dr pipe 4347 ft.

POTTAWATOMIE COUNTY—Hightower's Baker 1, se se nw 27-6n-3e, mit. Roy S. Nash et al's Miller 1, c n½ ne se 29-6n-3e, testing. Mid-Continent Pet. Corp.'s Ne-Thah-Pea-Se 1, se se ne 24-11n-4e, flo 125 bbls oil through tbng & died, si. Kerlyn Oil Co.'s Ball 1, nw sw nw 9-5n-3e, cor 2693 ft.

PUSHMATAHA COUNTY—Erle Halliburton et al's Bagwell 1, sw ne ne 30-2s-15e, sd 5050 ft.

SEMINOLE COUNTY—Stanolind, Amerada et al's Salina 1, se ne nw 4-5n-6e, A w/2000 gals, swb 20 bbls oil net & 200 bbls wtr, 24 hrs. J. F. Root's Cone 1, nw ne sw 11-7n-5e, C & P. Phillips Pet. Co.'s Gilcrease 1, nw nw se 16-7n-12e, sd 2990 ft.

STEPHENS COUNTY — Coline Oil Co.'s Johnson 1, sw se ne 1-2n-8w, dr 9760 ft. Ed Parsons et al's Blake 1, csw nw 22-2n-8w, to deepen. Newsom's Pfile 1, sw sw sw 1-2s-7w, dr 1925 ft. Jack Cohen's Pierce 1, ne ne nw 24-2s-6w, dr 1360 ft.

TILLMAN COUNTY — Gulf Oil Corp.'s Prichard 1, se nw se 32-3s-16w, dr 4145 ft. Tom Walker's Bowman 1, sw sw nw 10-4s-17w, sd 200 ft. Caven et al's Southerland 1, sw sw nw 35-4s-16w, sdo 44 ft.

WASHITA COUNTY—L. B. McWhirter et al's Fee 1, nw sw sw 34-8n-19w, sd 1810 ft. John Koberg's Harms 1, nw nw ne 6-10n-16w, sd 4200 ft.

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MIRANDO DISTRICT

DUVAL COUNTY — Joe Gier and Kone Prod. Co.'s W. R. Peters 2, sur 38, lcn. Magnolia's D. Ruiz 1, sur 189, rur. Navarro Oil Co.'s Standard Trust Co. 1, CEP Irr & Mg. sur, dr 3635 ft. H. J. Porter's Sevier 1, sec 754, abnd 6012 ft. Porter, Talbot & Dorn's A. Montemayor 1, Las Anacuas Grant, dr 4800 ft. Rudco Oil & Gas' K. L. Ellis 1, sur 308, rur. V. G. Schimmel's E. R. Hagist 3, BBB&C sur, abnd 2606 ft. Slaughter & Hugle's J. B. Hunter Estate 1, J. Poitevent sur, dr 1683 ft. E. R. Thomas Estate's E. V. de Pena 1, small sec 8, dr 4005 ft.

JIM HOGG COUNTY—Henry M. Brown, Tr.'s S. Gutierrez et al 1, sur 579, dr 3160 ft. Darby Pet. Co.'s R. Holbein 1-B, Las Animas grant, preparing to move in. French Oil Corp.'s Paula V. de Garza 5, sur 39, abnd 1072 ft; Paula V. de Garza 6, sur 269, td 1063 ft, wocs, 5½ in 1063 ft, perf 1040-43 ft, testing.

McMULLEN COUNTY—Adams & Lefevre's M. Selman 1, sec 58, abnd 3020 ft. Arthur J. Coyle's Two Rivers Ranch 1, sec 60, sd. W. P. Howard's B. C. Claunch 9, M. Hely sur, lost bailer, milling at 1068 ft. Rowan & Nichol's' D. W. Rhodes 1, M. F. Loew sur, abnd 2606 ft. C. C. Shumway's Shiner Ranch 11, G. J. Goode sur, ru. E. P. Tinney's J. Rutherford 1, Live Oak School Land sur, sd 730 ft.

STARR COUNTY—Dean Bros.' M. Valadez 1, e 2/7 por 84, perforate 1873 ft. J. W. Edwards' Q. Vela 1, El Tanque subd, abnd 1854 ft. Roy Gaines' Goodrich & Wood 1, por 81, abnd 1618 ft. Henshaw Bros. & Davis' M. M. Garcia 1, por 89, cored oil sand 2712-20 ft, testing. McAlister-Espenlaub's Ben D. Wood 1, por 84, dr 730 ft. Sun's F. S. Guerra 1, por 111, coring 1234 ft. Transwestern's Slick School 1, sur 266, dr 5667 ft.

WEBB COUNTY—Adams & Lefevre's E. Garcia 1, sur 592, dr 2420 ft. J. B. Blanchard et al's Laurell Bros. 1, sur 1006, comp, sand 1923-30 and 5½ in on top sand, heavy gas, 20 bbls oil. French Oil Corp.'s S. Benavides 3, sur 704, dr 429 ft; J. M. Garcia Estate 4 sur 1121, abnd 2629 ft. E. J. Pearl et al's D. las Garza Estate 2, sur 48, coring 1974 ft. Randon Oil Co.'s Joe C. Palmer 1, sur 474, dr 1438 ft.

ZAPATA COUNTY — Ray L. Martin's S. Vela 1, El Grullo grant, lcn. Eugene Mays et al's A. G. de Flores 1, Doroty sub, Charco Redondo gr, dr 2310 ft.

CORPUS CHRISTI DISTRICT

BEE COUNTY—J. R. Dougherty's R. T. Hicks Est. 3, J. M. Uranga gr, dr 1552 ft. Standard of Texas' Mestina Oil & Gas Co. 1, (lse 1) R. G. Salinas sur, coring 4161 ft; Mestina Oil & Gas Co. 9 (lse 1) R. G. Salinas sur, drilling 1926 ft; Mestina Oil & Gas Co. 2 (lse 2) R. G. Salinas sur, drill-stem test 2393-2404 ft, slight gas blow, cemented plugs, reperforated and testing.

HIDALGO COUNTY—Atlantic's E. T. McCalip 1, sec 175, rig. Dee Davenport et al's Hidalgo County District, sec 262, La Mestena grant, dr hard shale 5840 ft. Gulf States' Delta Orchards 2, Delta Orchards sub, plug back setting protection string in second hole at 2000 ft, td 2845 ft. Y. & B. Oil Co.'s Waite Bros.' 1, Los Ejidos grant, sd 4055 ft.

JACKSON COUNTY—Davey & Co.'s W. L. Hodges 1, I&GN sur 7, lcn abnd.

JIM WELLS COUNTY—H. M. Hill et al's B. Kuether 1, SK&K sur, set surface csg. Magnolia's A. A. Seeligson 7, Los Jaboncillos sur, coring 6650 ft.

KARNES COUNTY—Herbert Aid's Union Central 1, J. Poitevent sur, dr 40 ft. Ivan Howard's F. P. Moczygamba 1, E. Seguin sur 5, coring 2065 ft.

LIVE OAK COUNTY—Mills Bennett Prod. Co.'s Watson & Shipp 2, P. Salinas sur, coring 4804 ft. Hantho-Nelson's L. F. Ragan 1-A, Wm. O'Docharty sur, lcn. Holland & Coquat's Matikin 1, A. Glavecke sur, producing 150 bbls per day, injecting outside gas, making pipe line oil, 1502 ft. Petroleum Prod. Co.'s B. Alexander 1, Luis Ayres sur, coring Mirando sand 1053 ft, and on a 15 minute drill stem test recovered 40 ft mud. Standard of Texas' E. C. Nicholson 1, J. T. Shannon sur, sd and dr water. Unit Pet. Co.'s I. Atkinson 1, Luis Ayres sur, dr 575 ft.

NUECES COUNTY — Camp Prod. Corp.'s C. Phillip Wardner Paso Ancho Abajo and Paso Ancho Ariba surveys, td 6521 ft, will dr plugs. Sannex Oil Co.'s Emil Nesloney 1, Casa Blanca gr, dk. Seaboard's John M. Luby 1, Canutillo Ditch Colony sur, rig. Southern Minerals' Richard King 2, blk 6, King Farm Lots, dr 900 ft. United Prod. Co.'s T. S. Schroeder 1, A. F. de la Fuentes sur, coring 7605 ft.

REFUGIO COUNTY—Hogan Oil Co.'s J. S. Kelly 1, James Power sur, woc sur casing.

SAN PATRICIO COUNTY — Argo Oil Corp's A. Soehnge 1, P. J. & M. Delgado grant, dr 2204 ft. Danrey Oil Co.'s Jean Davis 1, Wm. Boyd sur, testing 7117 ft. F. P. Schwab's H. A. Smith 1, Juan Hart & Sons grant, coring 6382 ft. Waterbury Oil Corp.'s Jean Davis 1, G. W. Grover sur, coring 6585 ft.

VICTORIA COUNTY — Gulf's Mahon & Buehler 1, J. Poitevent sur, coring 4780 ft; T. P. Traylor 1, comp 7 in at 5584 ft, sand 5584-89 ft, flowing 70 bbls oil 11 hrs, ¼ in choke, tbg 2100, csg 2250 pounds. Magnolia's W. Beck 2, TNO RR sur 1, abnd 4832 ft. Stanolind's Henderson & Pickering 1, E. Benavides sur, dr 5802 ft. Wallace & Sollars et al's E. B. Terrell 1, J. M. Galban sur, dr 5282 ft.

WILLACY COUNTY—Magnolia's F. Armendiaz 1, San Juan de Carricitos grant, wocs 13⅜-in at 2480 ft. Sal Vieja Oil Corp.'s Garcia Land & Cattle 1, mim. Shell et al's Yturria Cattle Co. 2, San Juan de Carricitos grant, dr 5925 ft.

SAN ANTONIO DISTRICT

ATASCOSA COUNTY—Brown & Bell's G. C. Atkins 1, BS&F sur 3, dr 3970 ft. L. W. Stieren's T. A. Crawford 1, J. O. Crawford sur 69, set csg 300 ft.

BASTROP COUNTY—J. W. Bibb et al's O. B. Lentz 1, Freeman Wilkinson sur, sd 1000 ft. Hantho-Nelson's K. M. Litton 1, A. Litton sur, cleaning acid water and oil, 2517 ft. H. & H. Drilling Co.'s Earl C. Erhard 1, Knight & White league, dr 2854 ft. Marts & Beavans' C. L. Lackey 1, Joshua Gray sur, dr 1240 ft. R. Olsen Oil Co.'s M. Murchison 1, A. Litton sur, sd 2315 ft.

BEXAR COUNTY—L. K. Oil Co.'s W. A. Russell 2, F. Rodriguez sur, sd 1240 ft. R. P. Whitfield & Gus Draper's G. Ickey et al 1, E. Navarro sur, spudded.

CALDWELL COUNTY—B. C. Armstrong et al's Wilson Bell Estate 1, S. Seal sur, fluid standing 1100 ft in hole, preparing to pump 2447 ft. Brady Bros. & Pummel's A. B. Jackson 1, S. Morris sur, dr 1621 ft. Ellmag Oil Corp.'s Willie Pope 1, J. D. Rains sur, wor. F. & W. Drilling Co.'s C. P. Smith 1, J. Berry sur, dr Edwards 2280 ft. Lanning & Coffield's W. R. Trammell 1, Guadalupe College sur, plug back to 2125 ft, acidized and testing 2276 ft.

COMAL COUNTY—John R. Yates' E. Hedrick 2, A. M. Holbrook sur 423, dr 1000 ft.

DIMMITT COUNTY — Teas & Maryland Corp.'s McKnight 1, I&GN sur, dr 2010 ft. Wilcox Oil & Gas Co.'s Light Ranch 3, abnd 4760 ft; Light Ranch 4, dr 464 ft.

FRIO COUNTY—Amerada's Harrigan 1, S. Flores sur 306, flowed 39 bbls 1½ hours, ½-in choke, tubing 100 and casing 200 pounds, shut in 22 hours, tubing and casing equalized at 200 pounds. Pagenkopf & Jamieson's Houston Estate 1, J. Figuerroa sur, dr 2570 ft.

MAVERICK COUNTY — Wellington Oil Co.'s Chittim Ranch 1, I&GN sur, flowing 11½ barrels per hour 42 gravity clean oil through ¼-in choke, tubing 70 and casing 285 pounds.

MEDINA COUNTY—M. L. Walker's E. Riff 1, sur 43, lcn.

TRAVIS COUNTY—D. W. Hamer's J. B. Benson 1, Walker Wilson sur, lcn.

WILSON COUNTY — Diamond Half Oil Co.'s R. C. Donaho 1, J. Reynolds sur, spudded. Pat Higgins' Mrs. Annie Higgins 1, A. Trevino sur, ru.

TEXAS GULF COAST

CHAMBERS COUNTY — Ingot and Merit Oil Co.'s Wright 1, Cedar Bayou area, S. Smith sur, coring sand showing oil at 6583 ft. Joe Lundin et al's Lawrence 1, south of South Cotton Lake, S. Barrow sur, coring shale at 4173 ft.

FT. BEND COUNTY—Research's Moore 1, ne of Orchard, S. Kennedy sur, pb 3100 ft, testing. Windward Oil Co.'s Simms 1, e of Beasley, H&TC No. 1, dr shale 4806 ft.

GALVESTON COUNTY—R. R. Gray et al's Eidman 1, n of Dickinson, A. Hatch sur dk.

HARDIN COUNTY — Coronado Oil Co.'s Ryan 1, Hathaway area, J. G. Bell sur, dr shale 5250 ft. Humble's Shane 1, S. R. Fisher sur, coring shale 3431 ft.

HARRIS COUNTY — Medford & Burke's Pruitt 1, n of Crosby, G. Brooks sur, dr surface gravel 128 ft. Texas Gulf's Moore 1, Aldine area, W. C. R. R. No. 18, abn 7445 ft.

JEFFERSON COUNTY—Shell's McFaddin 1, McFaddin Ranch area, S. A. Pace sur, dredging canal.

LIBERTY COUNTY — Humble's Sabine Tram 2, Devers area, M. Whittington sur, dr shale 7522 ft.

MATAGORDA COUNTY — Continental's Hawkins 2, Sheppard's Mott area, D. McCarthy sur, abn 9210 ft.

SAN JACINTO COUNTY—J. Mayo et al's Gibbs 1, ne of Oakhurst, L. Enriquez sur, coring ahead at 1350 ft.

TRINITY COUNTY—Gossage & Thompson's Thompson 1, n of Trinity, J. Hickey sur, dr shale 1150 ft.

TYLER COUNTY — Thompson Dr. Co.'s Kountz 1, ne of Rockland, E. Smith sur, dr shale 1163 ft.

WHARTON COUNTY — Buck & Holt's Rainer 1, Blue Basin area, F. C. McReynolds sur, dr shale 2534 ft.

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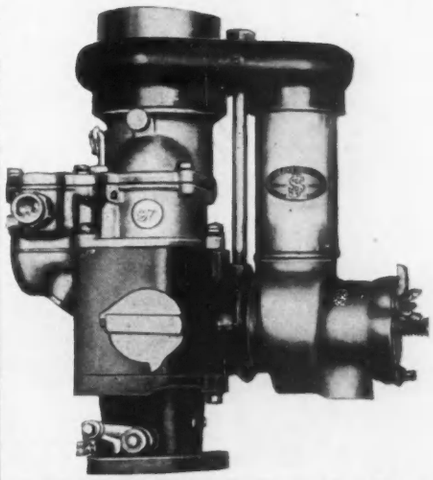

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BELT FASTENER
Flexible Steel Lacing Company

Flexible Steel Lacing Company, Chicago, recently announced a new fastener for joining C section V belts of fabric core, cross weave construction.

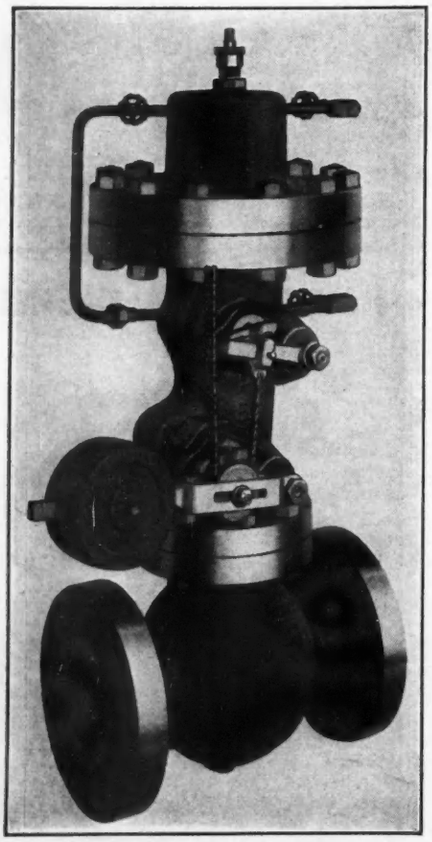
The features of the Alligator V belt fastener are the double rocker pin supported in bronze bushings and the

Alligator "V" Belt Fastener

method of holding the end plate to the belt end without materially weakening the belt or bulging its sides. The fastener makes practicable the installation, shortening or replacement of V belts on the job without delays or the necessity of tearing down expensive installations.

COPES FLOWMATIC REGULATOR
Northern Equipment Company

Northern Equipment Company, Erie, Pennsylvania, introduces a new two-element steam-flow type of boiler feed water regulator, known as the Copes Flowmatic Regulator. According to the manufacturer, it meets the demands for more accurate feed water control on modern high-rating boilers and on other units subjected to rapid, wide load fluctuations. It feeds the boiler according to the rate of steam flow and provides the water level characteristics that give best operating results on the individual unit. A higher water level can be provided on heavy loads than on light, or a practically constant level can be maintained for all ratings.



Copes Flowmatic Regulator

The Copes Flowmatic Regulator is simple and rugged. It has two control elements. The steam flow controller measures the rate of steam flow by taking the pressure drop through the superheater. The water level thermostat, with tension type expansion tube as used in the standard Copes regulator for many years, responds instantly to changes in the boiler water level. These two control elements are connected mechanically to the feed water control valve in such a way that the valve is positioned by the resultant of the two forces.

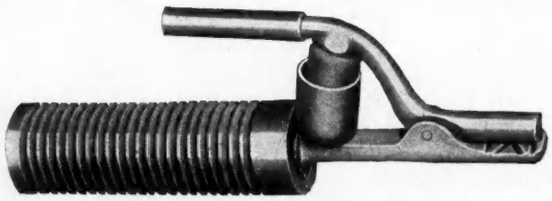
The feed control valve may be direct-operated or hydraulically-operated, depending on the service conditions. It may be installed at any position in the boiler feed line. It can be equipped with a motor operator permitting repositioning of the valve by push button from the operating panel.

The Copes Flowmatic Regulator is furnished in all pressure standards from the 250-pound upward. Valves are furnished in 2- to 6-inch sizes inclusive. The design is a logical development from more than 10 years of experience with other Copes steam-flow type regulators. The Flowmatic has been carefully tested over the last two years and several commercial installations are now in operation.

ELECTRODE HOLDER
Jackson Electrode Holder Company

Jackson Electrode Holder Company, 6553 Woodward Avenue, Detroit, Michigan, just introduced a new type electrode holder, which on light work will combine light weight with maximum conductivity and which is small enough to be successfully manipulated in tight places.

The new model—B-4—weighs 15 ounces, has a current capacity of 200 amperes and is made entirely of Mallory 3



Electrode Holder.

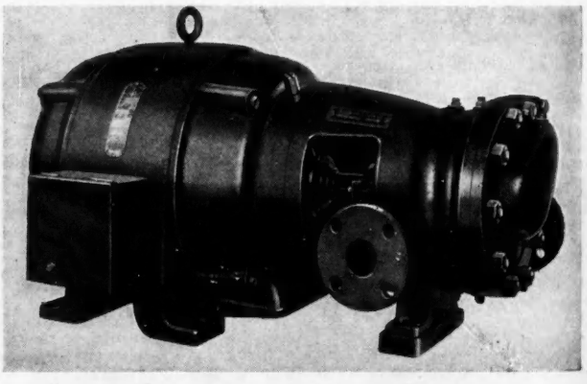
metal. This alloy insures strength and at the same time has 85 percent of the conductivity of pure copper. The handle insulation is thoroughly ventilated. Upper tong and compression spring are amply protected by fiber insulation.

This electrode holder will be found particularly efficient on pipe line and tank work and in general maintenance service, it is claimed.

TWO STAGE BUILT-TOGETHER PUMP
Fairbanks, Morse & Company

Fairbanks, Morse & Company, recently announced the development of a two-stage built-together pump (pump and motor built together) to operate against heads up to 500 feet—higher than could be handled by a single-stage unit. In many applications it offers a less expensive alternative for multi-stage and split-case pumps, and its compactness and sturdiness qualify it for portable and semi-portable as well as stationary service.

The new F-M pump is well adapted for all classes of general pumping service with liquids low in viscosity and free from excessive foreign matter. Because of its compact design, the pump is especially advantageous where space is limited. No special foundation is required; the pump is



Fairbanks, Morse Built-Together Pump

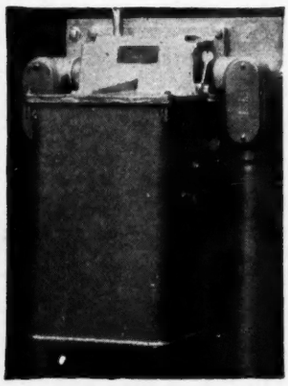
complete in itself and can be mounted in any convenient horizontal, vertical or angular position. Installation is extremely simple.

This new built-together pump consists essentially of a two-stage centrifugal pump, with enclosed bronze impellers, mounted directly on the shaft of an F-M splash-proof motor. There are no flexible coupling or alignment problems with which to contend. Two rugged ball bearings take all of the radial and unbalanced thrust loads. Impellers for the two stages are placed back to back, compensating thrust. Improved hydraulic design is attained by placing the first stage unit next to the motor and the second stage on the outside, simplifying the cross-over passage and placing the stuffing box under suction instead of pressure. A mounting leg under the pump end gives the unit added stability.

VOLTAGE LINESTARTERS

Westinghouse Electric & Manufacturing Company

Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pennsylvania, recently announced development of totally oil immersed linestarters, known as low voltage type DNO, which are corrosion resisting and explosion proof. They have been designed for starting squirrel cage motors in applications where either corrosive or explosive gases may be present. The combination starters provide in one oil tank, complete corrosion-resisting motor control, motor disconnect switch and circuit protective device. These linestarters are of weather-proof, drip-proof, splash-proof, dust-tight construction with cast iron top casting and heavy sheet steel tank with gasketed joint. They are designed for wall or frame mounting, with tapped holes for conduits on top. Ends and back of top casting may be tapped for conduit. Overload protection is provided by two thermal induction oil-immersed automatic reset overload relays, and low-voltage protection is obtained with three-wire push button control.



Voltage Linestarter.

Complete safety is assured by interlocking breaker handle with the tank so that the latter cannot be lowered unless the breaker handle is in the "off" position. Furthermore, the breaker cannot be closed with tank lowered unless the interlock is deliberately tripped.

In addition to the breaker and starter combination unit described above, there is also available a combination unit with non-automatic disconnect switch and a plain starter without disconnect.

PRINT BINDER HANGER

Wade Instrument Company

Wade Instrument Company, 2246 Brooklyn Station, Cleveland, Ohio, recently announced a print binder hanger, which, it is claimed, will hold 75 blue prints, maps, etc.

It is made of strong light duralumin with center hook of steel that can be turned down so that prints may be rolled for transportation or turned back for reference. Three telescopic binder screws with a metal strip at back hold the prints so firmly that loosening, falling out and tearing are practically eliminated. Three holes for permanent, or slots for temporary insertion, are easily cut in the prints with a knife or shears.

Wade Print Binder Hanger.

There are no projecting screws or sharp edges to cut and mar prints. The rounded design is easy to grasp and the overhanging lip at back allows placing the hanger on wall hooks that point inward. Stock sizes are 18-, 24-, and 30-inch. Any size 12- to 49-inch may be made to order.

7 SPECIALIZED BALLS AND SEATS

1. "Repelex" 4. "Steelex"
2. "Resistex" 5. "Combinex"
3. "Utilex" 6. "Bronzex"
7. "Kamonex"

WITH

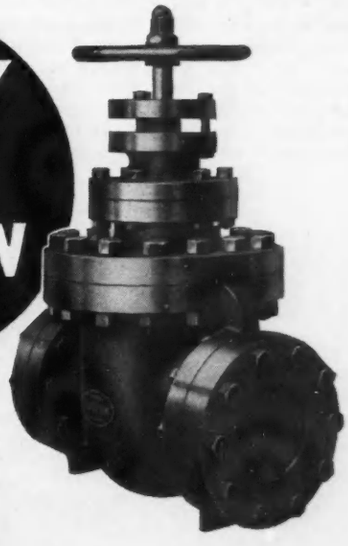
7 OUTSTANDING FEATURES

1. Individually designed for specific working conditions. 2. Made of highest-grade metal. 3. Built to give long service. 4. Heat-treated in controlled furnaces. 5. Correct degree of hardness. 6. Vacuum-tested. 7. Guaranteed tight.

HOUGH

The Charles N. Hough Mfg. Company
Franklin, Pa., and Tulsa, Oklahoma

RELY on LUDLOW



FOR VALVES that stand up — year after year — rely on Ludlow. Ludlow installations on oil and gas lines may be depended on for years of trouble-free performance.

Rely on Ludlow, too, for the right valve for any job. Whether standard or special types — every Ludlow valve is carefully constructed throughout of finest materials. Write Ludlow for complete information.

The LUDLOW VALVE MFG. CO.
TROY, NEW YORK

This Week with the Industry's EQUIPMENT SUPPLIERS

The Lane-Wells Builds Barge for Well Service

The Lane-Wells Company, Los Angeles, recently announced completion of its first barge to service oil wells in the coastal fields of Louisiana. This utility barge, under the direction of P. V. Tillbury, is stationed at The Texas Company's operating depot at Montegue, Louisiana, from which point it has access to practically all fields in coast waters.

The barge can be used in shallow inland channels as well as in open water. Its length, breadth, and draft are such that it will negotiate any "location canal." It is large enough, however, to ride moderately rough water in open bays.

The new barge is equipped with all necessary apparatus for maintaining the unit independent of The Lane-Wells Company's branch office at Lake Charles. This self-sufficiency was made necessary because of the nature of the water locations, their distance from operating points, and the slowness of transportation.

Aboard the barge, the operating machinery is housed in a substantial cabin built in the streamline style of the Lane-Wells truck. The rear door slides up far enough to allow the shooting cable to leave the drum at any angle from horizontal to vertical. This is a necessity on water location, since most of the time the shooting equipment will be less than 50 feet from the casing. In order to save time and to facilitate "tying up," the operating cabin enclosing the hoist is built on a turn-table. This allows the crew to "tie up" at the best mooring place and then line up the hoist for best operating conditions. The hoisting engine and power plant are closed off in a fireproof engine room for safety and quiet operation. All of the apparatus, including the controls, is placed for maximum efficiency and ease of maintenance. In addition to the operating cabin, there is a shop cabin, which houses various accessories and equipment for reloading the gun chambers.

James M. Kobabe Joins Mettler Company

Lee B. Mettler Company, 406 South Main Street, Los Angeles, has obtained the service of James M. Kobabe, as its executive general manager, with headquarters at the company's offices in Los Angeles.

Kobabe has been affiliated with the Mettler Company during the past 11 years as direct factory engineer, distributing its various products in the central states. As head of the James M. Kobabe Company, he maintained offices in the Peoples Gas Building, Chicago.

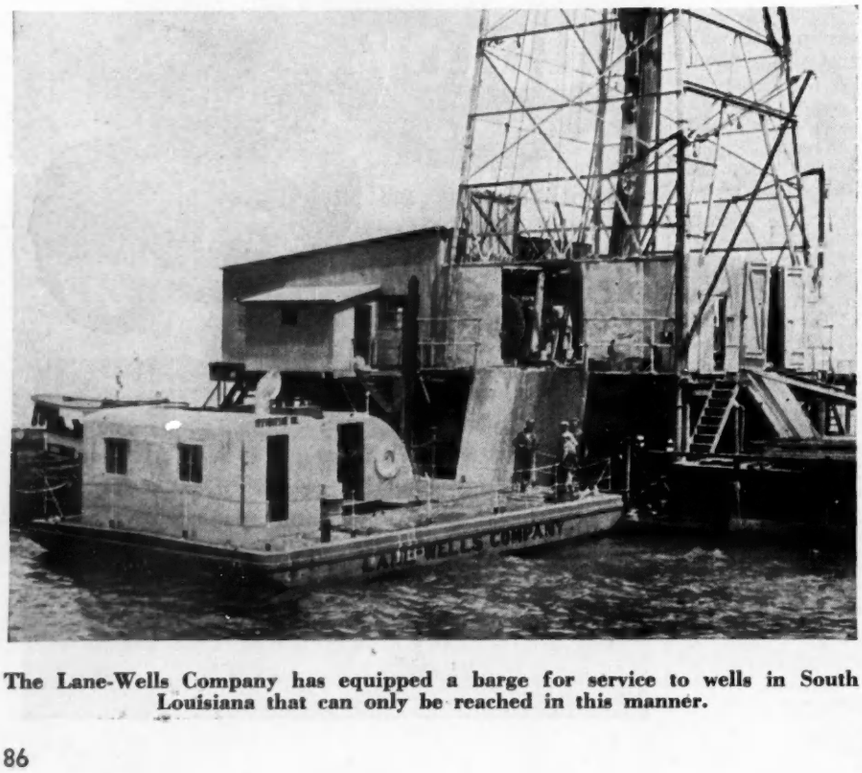
Under the direction of Kobabe, the Lee B. Mettler Company has planned an interesting program of expansion.

Howard Supply Company Completes Plant

Howard Supply Company, Los Angeles, announced completion of its new plant, located at 5121 South Santa Fe. This company was organized to handle the sales of nationally known brands of general oil field equipment in the California territory.

The company will make its headquarters on the five-acre site located at 51st Street and Santa Fe where remodeling of the office building will provide 6000 square feet of office space. Modernizing of facilities and addition of several new buildings will include 40,000 square feet of warehouse and an equal amount of yard storage to supplement the company's Wilmington storage yards. More than 50 men will be employed regularly in the warehouse and yards.

The officers of the company are: Harold Howard, president; George Trembly, vice president and director of sales; A. J. Moyer, secretary and treasurer, with D. D. Lucas district manager at Bakersfield and Earl Covel, sales representative in the Los Angeles basin.



The Lane-Wells Company has equipped a barge for service to wells in South Louisiana that can only be reached in this manner.

American Manufacturing Company Transfers H. D. Biles

American Manufacturing Company of Texas, Fort Worth, recently announced the transfer of H. D. Biles, its East and North Texas representative, to the company's headquarters in Fort Worth.

Lufkin Foundry Moves Tulsa Office

Lufkin Foundry & Machine Company, Lufkin, Texas, announces removal of its Tulsa office to 719 Thompson Building. D. A. Reid is in charge.

Lincoln Increases Staff of Philadelphia Office

Walter Dougan Wood, Jr., member of the discus squad of the 1936 U. S. Olympic team, has been appointed to the sales staff of the Philadelphia office of The Lincoln Electric Company, Cleveland, Ohio.

Orders of Clark Compressors for Edmond Field

Clark Bros. Company, Olean, New York, reports the receipt of an order for seven 250-horsepower super 2-cycle horizontal twin compressor units. These are to be installed in the Edmond field, Oklahoma, for gas booster service.

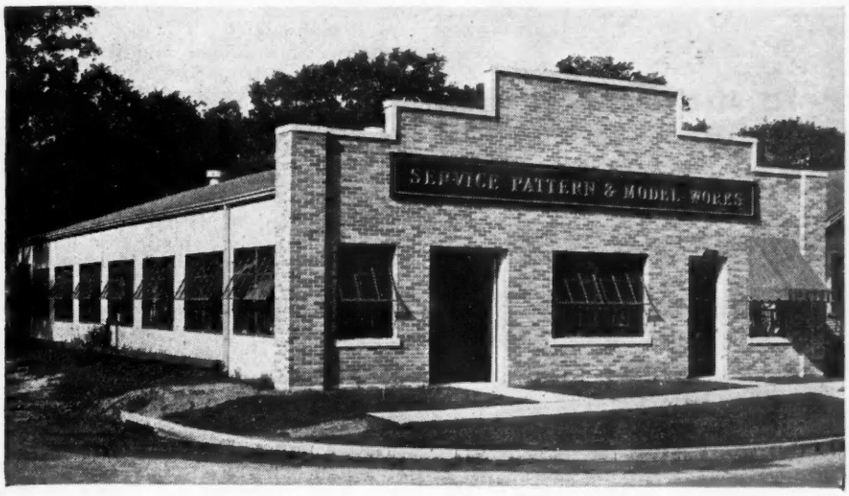
The company also reports receipt of an order for 15 250-horsepower twin cylinder super 2-cycle horizontal gas engine-driven compressors to be used in the natural gasoline plant in the Edmond field.

Lane-Wells Plans Stock Issue After Consolidating Companies

Lane-Wells interests, which were managed through several companies until recent organization of Lane-Wells Company (Delaware), which consolidated the predecessor companies under one management, contemplates the issue of 60,000 shares of stock in addition to the 250,000 shares outstanding. Of the new issue, 40,000 will be offered to the public at $15 per share and 20,000 to employees at $13.50, it is contemplated in a registration statement filed with the Securities and Exchange Commission.

Companies absorbed by the new Lane-Wells Company (Delaware) include: The Lane-Wells Company (California), Technicraft Engineering Corporation, The Lane-Wells Company of Texas, The Lane-Wells Company of Oklahoma, Lane-Wells International, Incorporated, and Alexander Anderson, Incorporated.

It is further contemplated in the registration statement that W. T. Wells and W. G. Lane, president and vice president, respectively, will continue at the helm of the new organization. They and their



Service Pattern & Model Works' new shop at 4208 Navigation Boulevard, Houston. The company manufactures various patterns for both drilling and production equipment.

wives own the 250,000 shares of outstanding stock.

The company specializes in gun-perforating wells, operating in the United States, Canada, Venezuela, Colombia, Trinidad and other foreign countries. Proceeds from the new issue will be used largely for expansion.

Tobin Aerial Maps Not Damaged in Plant Fire

Fire, causing $100,000 damage, gutted the plant and laboratory of Edgar Tobin Aerial Surveys, Inc., at San Antonio, September 28, destroyed valuable instruments and supplies. Quick action in closing the vaults, however, saved almost priceless files of aerial films, which have been made through thousands of miles of flying and years of laboratory work. These aerial maps cover a large portion of the present producing sector of the Mid-Continent and Gulf Coast and their destruction would have been a sad loss to the industry generally.

The company maintains its own 3-story office building in another portion of the city. Much of the equipment and maps were at that location, hence it will not greatly impair the concern's facilities to serve its customers, officials announced.

The company has concluded arrangements for a new building.

Baash-Ross Tool Company Holds Picnic

Baash-Ross Tool Company, Los Angles, recently held an all-day picnic for employes of the company and their families at Lakewood Country Club, Long Beach.

More than a thousand persons were in attendance, and the country club was at the disposal of the picnic guests exclusively for the day. All sorts of games were organized, affording an opportunity for everyone to compete for carefully selected prizes. An excellent dinner was served in the dining rooms to all guests, and toward the close of the day more than 36 major prizes, as well as many second and third prizes were awarded to the winning contestants by L. F. Baash, president of the company, assisted by H. C. Ross, vice president, and the other executives.

New Directory Contains Names Of Oil Company Executives

A business directory of Houston, which contains among other things a section devoted to oil and mineral industries, production and royalty companies, refineries, drilling contractors, geologists and geophysicists, has been published by Business Research Service, 914 Franklin Avenue, Houston, under the title of "Directors of Houston Business."

In the section devoted to the oil business is a chart showing Texas oil production by districts, giving the peak year production figure, production for 1936, and accumulative production through 1936. Another chart shows the value of manufactured products from 1920 through 1936, with the graph projected through 1940. Production figures used in the chart are taken from THE OIL WEEKLY.

Merrill N. Davis Named A.G.A.E.M. President

Merrill N. Davis, executive vice president and secretary of S. R. Dresser Manufacturing Company, Bradford, Pennsylvania, was elected president of the Association of Gas Appliance and Equipment Manufacturers at the second annual meeting in Cleveland, Ohio, September 27.

E. R. Guyer, vice president of the Cribben and Sexton Company, Chicago, Illinois, was elected vice president, and Donald McDonald, secretary of the American Meter Company, New York, was reelected treasurer of the association.

Chemists' Program for Oil Show Announced

The Petroleum Chemists Division of the Refinery Committee of the Oil-World Exposition has formulated an important program dealing with petroleum chemical problems that will be presented in three sessions on Tuesday, October 12.

The following papers will be delivered: "Chemical and Physical Methods for the Extraction of Salts From Refinery Charging Stocks," by Dr. S. K. Talley, Shell Petroleum Corporation, Houston; "Controversial Methods of Asphalt Testing," by H. W. Slaughter, E. W. Saybolt & Company; "The Treatment of Boiler Feedwaters," by H. L. McMullen, Missouri-Pacific Lines, Houston; "Evaluation of Crude Oil in the Laboratory," by L. C. Kemp, The Texas Company, Port Arthur, Texas; "Accelerated Method of Determining Stability of Cracked Fuels," by A. W. Trusty, Arkansas Fuel Oil Company, Shreveport; "Testing Methods of Evaluation of Used Motor Oils," by B. D. Ward, Humble Oil & Refining Company, Baytown, Texas; "Oxidation of Lubricating Oils," by H. A. Ambrose and C. W. Montgomery, Gulf Research and Development Corporation, Pittsburgh, Pennsylvania.

L. F. Baash snapped while awarding first prize to a fair contestant at the Baash-Ross Tool Company's employees picnic recently held at the Lakewood Country Club, Long Beach, California.

Squeaks from the Bull Wheel

Getting Satisfaction

"Well," said the Englishman (you know him) to the Scot (you know him, too), as they alighted from the London-Glasgow express, "it's been a long and tiring journey."

"Aye," said the Scot, "an' so it ought tae be, for the money."

Easily Quieted

A Scotch family lived in the apartment above. Many friends called and dances were held nearly every night.

"Doesn't all that dancing disturb you?" asked a friend of the man below.

"No," the man replied, "when we want to stop their dancing all we do is turn off our radio."

Time to Advertise

A superstitious subscriber wrote to an editor saying that he had found a spider in his paper and asking whether that was a sign of good luck or bad. The editor wrote this answer and printed it:

"Old Subscriber: Finding a spider in your paper was neither good luck nor bad luck for you. The spider was merely looking over our paper to see which merchant is not advertising so that he can go to that store, spin his web across the door and lead a life of undisturbed peace afterward."

Strange Car

"The officer has stated that you were abusive when you were stopped."

"Well, you see I was in a tantrum at the time."

"The make of your car doesn't interest me in the least."

Sharpen the Horns

"I'm to be initiated in the Local Lodge tonight and I'm scared stiff."

"Why?"

"About a month ago I sold the Local President my second-hand fliver."

Florida Papers Copy

Millionaire Jones was recalling the struggles of his youth.

"I was living in California, and my parents in New York," he said, "and I had just managed to save enough money to buy myself a bicycle when my father wrote that my mother was ill.

"I jumped on my bicycle and rode across the continent, only to be told that California air was all that would save my mother.

"So I dragged the bike in beside the bed, let the California air out of the tires, and she lived to the good old age of 95."

Excusable

"But this officer says that while you were in a drunken state you tried to climb a lamp post."

"Yes, I did; but three crocodiles had been following me about all night, and they were getting on my nerves."

A Debt Outlawed

Sambo promoted himself into a job as bouncer for a certain cafe and, furthermore, he guaranteed to collect any money that might be owed his boss by patrons.

And Sambo made good. By his violent attitude he forced four or five timid patrons to pay their back debts. Then one day his boss spied a bad-looking colored man across the street who owed him money.

Sambo raced over and grabbed the other man's arm, demanding why the money hadn't been paid his boss.

"'Cause," replied the other man harshly, "Ah been in jail fo' a murder Ah committed. Now, whut was you' reason fo' stoppin' me?"

Sambo gulped. He wet his lips.

"De reason Ah stopped you," he returned nervously, "was jes' to tell you' not to worry. Dat debt is outlawed!"

With Uncle Bennie

"Did you put your overcoat away in moth balls to keep the moths away?"

"No; I put it away with three gold balls to keep the wolf away."

Patriot

For an hour the commanding officer had been lecturing the squad of new recruits about the glories of being a soldier.

Having emphasized their duties as soldiers of King and country, the officer called to one of the recruits—McGlinty—and questioned him.

"Now then, Private McGlinty," he said. "I just want to see whether you have been listening. Tell me, why should a man lay down his life for his King and country?"

McGlinty scratched his head for a moment. Then his face lit up.

"Faith, captain," he cried, "you're right—why should he?"

It Doesn't Pay

The captain of a steamer took on two hands—one a Kirkcaldy man without a written character, and the other from Dundee possessed of abundant documentary evidence as to his honesty and who regarded his fellow-seaman with supercilious manner. They had not been long at sea when they encountered rough weather, and the Dundee man, when crossing the deck with a bucket in his hand, was swept overboard.

The Kirkcaldy man saw what had happened and sought out the captain. "Dae ye mind yon man from Dundee," he said, "that ye engaged wi' the fine character?"

"Yes," said the captain. "What of it?"

"He's awa' wi' yer bucket," was the reply.

That's Different

He had arrived home late, and was being told all about it by his wife. At last he lost his temper, too, and said a few things back.

"I don't care," he said. "I mean exactly what I say. I'm a man who calls a spade a spade."

His wife snorted. "Maybe, James," she said icily, "you do call a spade a spade, but you don't call a club a club—you call that working late at the office."

Broke the News Gently

Two Irishmen had worked in a stone quarry for years. Murphy was careless in handling dynamite one day and his friend Kelley was given the job of carrying the sad news to his widow.

"Mrs. Murphy," said he, "isn't today when the fellow calls for the payment on your husband's life insurance?"

"It is," was the reply.

"Well now, a word in your ear. Sure ye can snap your fingers at him today."

EDWARD 6000 Lb.

O. W. G. VALVES

for dependable control of

HIGH PRESSURE

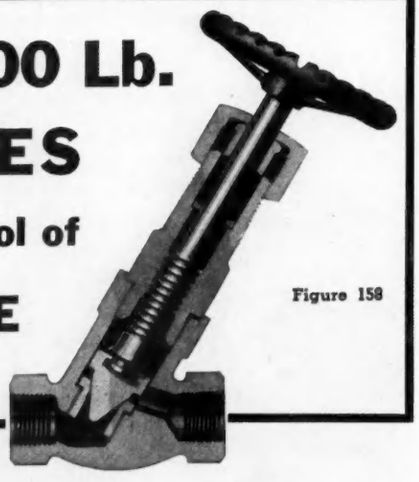


Figure 158

Specify this 6000 pound cold working pressure valve for use on your high pressure piping. Stainless steel trim. Sizes: ½" through 2".

MAINTENANCE ENGINEERING CORPORATION

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